

SKINNER LANDFILL WORK GROUP

August 09, 2001

Scott Hanson
EPA Project Coordinator
United States Environmental Protection Agency
Region V, C-14J
77 W. Jackson Blvd.
Chicago, IL 60604

EPA Region 5 Records Ctr.



275177

**Subject: July 2001 Progress Report
Skinner Landfill
West Chester, Ohio**

This status report for July 2001 was prepared by the Skinner Landfill Group (SLG), as required by the Consent Decree entered by the United States District Court on April 2, 2001 for the Skinner Landfill in West Chester, Ohio.

July 2001 Construction Activities:

- Completed regrading of waste
- Completed placement of sub-grade fill
- Completed construction of Interceptor Trench # 1 & 3 and commenced construction of Interceptor Trench #2.
- Re-excavated selected areas outside of landfill that did not meet cleanup criteria and consolidated into landfill. Confirmation soil samples were taken of the re-excavated areas.
- Completed installation of passive gas vents.
- Completed installation of the landfill cap piezometers per the Groundwater Waste Monitoring Plan.
- Repaired damage caused by 50-yr storm event that occurred on July 17, 2001.
- Commenced installation of geo-synthetic cap components.
- Commenced installation of diversion berm along duck pond area.
- CQA testing performed met all project specifications.

Regulatory Submittals/Approvals

- Submitted revised sub-grade grading plan to US EPA. Revised plan was approved by USEPA on June 27, 2001.
- Submitted proposal for stabilization of Mill Creek bank from stations 5+00 to 7+00. Proposal was approved by USEPA on July
- Submitted realignment plan for Interceptor Trench #2. (Modified plan was approved by USEPA on July
- Submitted geosynthetic construction detail clarification to USEPA.
- Revised GCL CQA testing methods and frequency submitted to USEPA. Revised CQA plan was approved by USEPA on July

Community Outreach Activities

On July 18, 2001 a meeting was held at the Earth Tech construction trailer. Attendees included a representative of the West Chester Fire Chief Department, Scott Hanson - US EPA, Ben Baker - Skinner Landfill Technical Committee, and several representatives from Earth Tech. The purpose of this meeting was to review site activities and progress on the implementation of the final cover and groundwater collection system. West Chester Trustee and Township officials are updated by the Fire Department on the progress of the work at the site and of any upcoming activities that have potential to impact the community. The Assistant Fire Chief visits the site several times throughout the week to keep informed on site activities.

The next monthly meeting is scheduled for August 22, 2001.

Current Issues

- Revised drainage plan is under development.
- Finalize connection requirements to Butler County sewer system.
- Fence realignment to allow access to bridge over Mill Creek by owner.

Field Sampling Plan Activities

Three sampling events occurred during July.

- July 23, 2001 - Soil confirmation samples of the off-site areas excavated
- July 9, 2001 - Surface water run-off sampled
- July 26, 2001 - Surface water sampling was done

The results of the May 8 and June 1, 2001 surface water runoff and May 18 and June 13, 2001 surface water sampling results have been validated. These results are summarized in Attachment 1.

The results of the June 26 & June 28 soil sampling and July 9, 2001 surface water run-off sampling events have been received and are undergoing data validation.

Sampling planned within the next six weeks is:

- Surface water sampling
- Surface water run-off sampling if a rain event > 0.1 inch occurs and run-off occurs
- Depending upon the results of the soil excavation confirmation sampling additional soil samples may be taken.

Additional details on the implementation of the Field Sampling Plan can also be found in Attachment 2.

Construction photo documentation of various site activities is on going. See Attachment 3 for selected photos showing various activities being conducted within this reporting period.

Weekly Construction Quality Assurance Reports can be found in Attachment 4.

Selected Construction Quality Assurance testing results can be found in Attachment 5.

Submittals Received

See Table 1 for a list of submittals received and approved by the Engineer.

See Attachment 5 for selected results of Construction Quality Assurance Testing Results for sub-grade placement and slurry trench installation. All CQA testing meet specifications.

Planned Activities:

Activities planned over the next six weeks include:

- Complete installation of interceptor trenches
- Continue removal of general fill from various borrow area with the site

- Continue deployment of geosynthetic cap components
- Continue implementation of CQA per approved plan, as revised.
- Continue construction layout by surveyors
- Sampling per Field Sampling Plan schedule
- Project meeting scheduled for August 22, 2001.
- Disposal of waste streams identified by tank and drum sampling activity.
- Complete excavation and restoration of off-site areas.

If you have questions regarding the status of activities associated with the Site, please contact Ben Baker at (517) 636-0787.

Sincerely,



Ben Baker, Chairman
 Skinner Landfill Technical Committee
 c/o The Dow Chemical Company
 Ashman Center
 9008 Bldg
 4520 E. Ashman
 Midland, MI 48674
 (517) 636-0787

cc Chuck Mellon, Ohio EPA
 Chuck Terwilliger, SLG Steering Committee
 Michael O'Callaghan, Shumaker, Loop & Kendrick, LLP
 Ron Roelker, Earth Tech
 Rick Warwick, Earth Tech

ATTACHMENTS

1. Verified Analytical Data Package
 - Soil Sampling Results
 - Surface Water Run-off
 - Surface Water
2. Field Sampling Plan Summary
3. Photo Documentation
4. Weekly CQA Reports
 - July 3, 2001
 - July 13, 2001
 - July 24, 2001
 - July 31, 2001
5. Construction Quality Assurance Testing Results
 - Testing Frequency
 - Trial Welds
 - Destructive Testing Summary
 - Panel Placement
 - Panel Seaming
 - Repair Log Report
 - Non-Destructive Testing Summary
 - Mass per Unit Area of Geocomposite Test Results
 - Tensile Properties of Geomembrane
 - Core Thickness of Textured Geomembrane
 - Geosynthetic Clay Liner Conformance Testing
 - Geomembrane Gradient Density Test
 - Geomembrane Black Content and Dispersion
 - Geomembrane Peel Adhesion Test Results
 - Field compaction Tests

TABLE 1

SUBMITTAL NUMBER	DESCRIPTION OF SUBMITTAL
027	Geocomposite Data Sheet (Specification Section 02418, Paragraph 1.02.A.2)
028	Geomembrane Roll Certification
029	Geocomposite QC/Manufacture Certifications (Section 01340 Paragraph 102 E-3)
030/031/033	Geosynthetic Clay Liner Manufacturing QA/QC Data Package (Section 01340 Paragraph 102 E-3)
032	Geomembrane Manufacture Certifications ((Section 01340 Paragraph 102 E-3)

ATTACHMENT I

VERIFIED ANALYTICAL DATA PACKAGE

**Skinner Landfill Remedial Action
Field Sampling Plan
Monthly Report**

Soil Sampling Results

SAMPLE ID	SAMPLE ORIGIN	CONSTITUENT OF CONCERN	EVENT-100 LABORATORY ANALYTICAL RESULT	EVENT-200 LABORATORY ANALYTICAL RESULT	EVENT-300 LABORATORY ANALYTICAL RESULT	RA FSP TRIGGER LEVEL
SK-SS-01	excavation surrounding GW-38, northwest wall	Lead	11.9296	NFS	NFS	500.0
		Aroclor-1016	<0.0330372	NFS	NFS	0.16 (total)
		Aroclor-1221	<0.0330372	NFS	NFS	
		Aroclor-1232	<0.0330372	NFS	NFS	
		Aroclor-1242	<0.0330372	NFS	NFS	
		Aroclor-1248	<0.0330372	NFS	NFS	
		Aroclor-1254	<0.0330372	NFS	NFS	
		Aroclor-1260	<0.0330372	NFS	NFS	
		Benzo (a) anthracene	<0.330372	NFS	NFS	0.330
		Benzo (a) pyrene	<0.09936	NFS	NFS	0.100
Benzo (b) fluoranthene	<0.3300408	NFS	NFS	0.330		
Chrysene	<0.3300408	NFS	NFS	0.330		
SK-SS-02	excavation surrounding GW-38, northeast wall	Lead	67.8078	NFS	NFS	500.0
		Aroclor-1016	<0.0330812	NFS	NFS	0.16 (total)
		Aroclor-1221	<0.0330812	NFS	NFS	
		Aroclor-1232	<0.0330812	NFS	NFS	
		Aroclor-1242	<0.0330812	NFS	NFS	
		Aroclor-1248	<0.0330812	NFS	NFS	
		Aroclor-1254	<0.0330812	NFS	NFS	
		Aroclor-1260	<0.0330812	NFS	NFS	
		Benzo (a) anthracene	1.0825	<0.330023	NFS	0.330
		Benzo (a) pyrene	0.96992	NFS	NFS	0.100
Benzo (b) fluoranthene	1.31632	<0.330023	NFS	0.330		
Chrysene	1.18642	<0.330023	NFS	0.330		
SK-SS-03	excavation surrounding GW-38, east wall	Lead	11.2068	NFS	NFS	500.0
		Aroclor-1016	<0.0330261	NFS	NFS	0.16 (total)
		Aroclor-1221	<0.0330261	NFS	NFS	
		Aroclor-1232	<0.0330261	NFS	NFS	
		Aroclor-1242	<0.0330261	NFS	NFS	
		Aroclor-1248	<0.0330261	NFS	NFS	
		Aroclor-1254	<0.0330261	NFS	NFS	
		Aroclor-1260	<0.0330261	NFS	NFS	
		Benzo (a) anthracene	<0.3300063	NFS	NFS	0.330
		Benzo (a) pyrene	<0.100182	NFS	NFS	0.100
Benzo (b) fluoranthene	<0.3300063	NFS	NFS	0.330		
Benzo (k) fluoranthene	<0.3300063	NFS	NFS	0.330		
Chrysene	<0.3300063	NFS	NFS	0.330		
SK-SS-04	excavation surrounding GW-38, southeast wall	Lead	14.0017	NFS	NFS	500.0
		Aroclor-1016	<0.0330715	NFS	NFS	0.16 (total)
		Aroclor-1221	<0.0330715	NFS	NFS	
		Aroclor-1232	<0.0330715	NFS	NFS	
		Aroclor-1242	<0.0330715	NFS	NFS	
		Aroclor-1248	<0.0330715	NFS	NFS	
		Aroclor-1254	<0.0330715	NFS	NFS	
		Aroclor-1260	<0.0330715	NFS	NFS	
		Benzo (a) anthracene	<0.3300278	NFS	NFS	0.330
		Benzo (a) pyrene	<0.099644	NFS	NFS	0.100
Benzo (b) fluoranthene	<0.3300278	NFS	NFS	0.330		
Benzo (k) fluoranthene	<0.3300278	NFS	NFS	0.330		
Chrysene	<0.3300278	NFS	NFS	0.330		
SK-SS-05	excavation surrounding GW-38, southwest wall	Lead	17.0544	NFS	NFS	500.0
		Aroclor-1016	<0.033048	NFS	NFS	0.16 (total)
		Aroclor-1221	<0.033048	NFS	NFS	
		Aroclor-1232	<0.033048	NFS	NFS	
		Aroclor-1242	<0.033048	NFS	NFS	
		Aroclor-1248	<0.033048	NFS	NFS	
		Aroclor-1254	<0.033048	NFS	NFS	
		Aroclor-1260	<0.033048	NFS	NFS	
		Benzo (a) anthracene	<0.329904	NFS	NFS	0.330
		Benzo (a) pyrene	<0.09384	NFS	NFS	0.100
Benzo (b) fluoranthene	<0.329904	NFS	NFS	0.330		
Benzo (k) fluoranthene	<0.329904	NFS	NFS	0.330		
Chrysene	<0.329904	NFS	NFS	0.330		

Results presented in mg/kg (ppm)

NFS - No Further Sampling

RA FSP - Remedial Action Field Sampling Plan

< - result not detected above detection limit with detection limit shown

Results reported as wet weight values

Page 1

**Skinner Landfill Remedial Action
Field Sampling Plan
Monthly Report**

Soil Sampling Results

SAMPLE ID	SAMPLE ORIGIN	CONSTITUENT OF CONCERN	EVENT-100 LABORATORY ANALYTICAL RESULT	EVENT-200 LABORATORY ANALYTICAL RESULT	EVENT-300 LABORATORY ANALYTICAL RESULT	RA FSP TRIGGER LEVEL
SK-SS-06	excavation surrounding GW-38, west wall	Lead	15.6752	NFS	NFS	500.0
		Aroclor-1016	<0.0330472	NFS	NFS	0.16 (total)
		Aroclor-1221	<0.0330472	NFS	NFS	
		Aroclor-1232	<0.0330472	NFS	NFS	
		Aroclor-1242	<0.0330472	NFS	NFS	
		Aroclor-1248	<0.0330472	NFS	NFS	
		Aroclor-1254	<0.0330472	NFS	NFS	
		Aroclor-1260	<0.0330472	NFS	NFS	
		Benzo (a) anthracene	<0.3299872	NFS	NFS	0.330
		Benzo (a) pyrene	<0.100192	NFS	NFS	0.100
		Benzo (b) fluoranthene	<0.3299872	NFS	NFS	0.330
		Benzo (k) fluoranthene	<0.3299872	NFS	NFS	0.330
		Chrysene	<0.3299872	NFS	NFS	0.330
SK-SS-07	excavation surrounding GW-38, bottom west	Lead	11.9528	NFS	NFS	500.0
		Aroclor-1016	<0.0330932	NFS	NFS	0.16 (total)
		Aroclor-1221	<0.0330932	NFS	NFS	
		Aroclor-1232	<0.0330932	NFS	NFS	
		Aroclor-1242	<0.0330932	NFS	NFS	
		Aroclor-1248	<0.0330932	NFS	NFS	
		Aroclor-1254	<0.0330932	NFS	NFS	
		Aroclor-1260	<0.0330932	NFS	NFS	
		Benzo (a) anthracene	<0.33004	NFS	NFS	0.330
		Benzo (a) pyrene	<0.099904	NFS	NFS	0.100
		Benzo (b) fluoranthene	<0.33004	NFS	NFS	0.330
		Benzo (k) fluoranthene	<0.33004	NFS	NFS	0.330
		Chrysene	<0.33004	NFS	NFS	0.330
SK-SS-08	excavation surrounding GW-38, bottom east	Lead	9.681	NFS	NFS	500.0
		Aroclor-1016	<0.0330998	NFS	NFS	0.16 (total)
		Aroclor-1221	<0.0330998	NFS	NFS	
		Aroclor-1232	<0.0330998	NFS	NFS	
		Aroclor-1242	<0.0330998	NFS	NFS	
		Aroclor-1248	<0.0330998	NFS	NFS	
		Aroclor-1254	<0.0330998	NFS	NFS	
		Aroclor-1260	<0.0330998	NFS	NFS	
		Benzo (a) anthracene	<0.3299838	NFS	NFS	0.330
		Benzo (a) pyrene	<0.099576	NFS	NFS	0.100
		Benzo (b) fluoranthene	<0.3299838	NFS	NFS	0.330
		Benzo (k) fluoranthene	<0.3299838	NFS	NFS	0.330
		Chrysene	<0.3299838	NFS	NFS	0.330
SK-SS-09	BP01/BP02 excavation, north wall	Lead	25.1214	NFS	NFS	500.0
		Aroclor-1016	<0.033078	NFS	NFS	0.16 (total)
		Aroclor-1221	<0.033078	NFS	NFS	
		Aroclor-1232	<0.033078	NFS	NFS	
		Aroclor-1242	<0.033078	NFS	NFS	
		Aroclor-1248	0.03576	NFS	NFS	
		Aroclor-1254	<0.033078	NFS	NFS	
		Aroclor-1260	<0.033078	NFS	NFS	
		Benzo (a) anthracene	1.30524	6.37512	1.53816	0.330
		Benzo (a) pyrene	1.341	5.94688	1.5028	0.100
		Benzo (b) fluoranthene	2.12772	8.2416	2.43984	0.330
		Benzo (k) fluoranthene	0.91188	3.01384	1.02544	0.330
		Chrysene	1.68072	7.53056	2.05972	0.330
SK-SS-10	BP01/BP02 excavation, north sample from west wall	Lead	8.8658	NFS	NFS	500.0
		Aroclor-1016	0.914	NFS	NFS	0.16 (total)
		Aroclor-1221	0.914	NFS	NFS	
		Aroclor-1232	0.914	NFS	NFS	
		Aroclor-1242	0.914	NFS	NFS	
		Aroclor-1248	0.914	NFS	NFS	
		Aroclor-1254	0.914	NFS	NFS	
		Aroclor-1260	0.914	NFS	NFS	
		Benzo (a) anthracene	0.0913086	NFS	NFS	0.330
		Benzo (a) pyrene	0.0816202	NFS	NFS	0.100
		Benzo (b) fluoranthene	0.106938	NFS	NFS	0.330
		Benzo (k) fluoranthene	0.045243	NFS	NFS	0.330
		Chrysene	0.104196	NFS	NFS	0.330

Results presented in mg/kg (ppm)

NFS - No Further Sampling

RA FSP - Remedial Action Field Sampling Plan

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Results reported as wet weight values

Skinner Landfill Remedial Action

Field Sampling Plan

Monthly Report

Soil Sampling Results

SAMPLE ID	SAMPLE ORIGIN	CONSTITUENT OF CONCERN	EVENT-100 LABORATORY ANALYTICAL RESULT	EVENT-200 LABORATORY ANALYTICAL RESULT	EVENT-300 LABORATORY ANALYTICAL RESULT	RA FSP TRIGGER LEVEL
SK-SS-11	BP01/BP02 excavation, center sample from west wall	Lead	17.8506	NFS	NFS	500.0
		Aroclor-1016	0.846	NFS	NFS	0.16 (total)
		Aroclor-1221	0.846	NFS	NFS	
		Aroclor-1232	0.846	NFS	NFS	
		Aroclor-1242	0.846	NFS	NFS	
		Aroclor-1248	0.846	NFS	NFS	
		Aroclor-1254	0.846	NFS	NFS	
		Aroclor-1260	0.846	NFS	NFS	
		Benzo (a) anthracene	0.044415	NFS	NFS	0.330
		Benzo (a) pyrene	0.0384084	NFS	NFS	0.100
		Benzo (b) fluoreanthene	0.0472068	NFS	NFS	0.330
		Benzo (k) fluoreanthene	0.846	NFS	NFS	0.330
		Chrysene	0.0416232	NFS	NFS	0.330
SK-SS-12	BP01/BP02 excavation, south sample from west wall	Lead	37.9291	NFS	NFS	500.0
		Aroclor-1016	<0.0330513	NFS	NFS	0.16 (total)
		Aroclor-1221	<0.0330513	NFS	NFS	
		Aroclor-1232	<0.0330513	NFS	NFS	
		Aroclor-1242	<0.0330513	NFS	NFS	
		Aroclor-1248	<0.0330513	NFS	NFS	
		Aroclor-1254	<0.0330513	NFS	NFS	
		Aroclor-1260	<0.0330513	NFS	NFS	
		Benzo (a) anthracene	0.300237	NFS	NFS	0.330
		Benzo (a) pyrene	0.328831	NFS	NFS	0.100
		Benzo (b) fluoreanthene	0.394429	0.261995	NFS	0.330
		Benzo (k) fluoreanthene	0.1682	NFS	NFS	0.330
		Chrysene	0.317898	NFS	NFS	0.330
SK-SS-13	BP01/BP02 excavation, sample from south wall	Lead	36.4994	NFS	NFS	500.0
		Aroclor-1016	<0.1309437	NFS	NFS	0.16 (total)
		Aroclor-1221	<0.1309437	NFS	NFS	
		Aroclor-1232	<0.1309437	NFS	NFS	
		Aroclor-1242	<0.1309437	NFS	NFS	
		Aroclor-1248	0.19343	0.015192	NFS	
		Aroclor-1254	<0.1309437	NFS	NFS	
		Aroclor-1260	0.27753	<0.0325784	NFS	
		Benzo (a) anthracene	5.6347	3.57856	NFS	0.330
		Benzo (a) pyrene	5.2983	3.46884	NFS	0.100
		Benzo (b) fluoreanthene	6.51775	4.4732	NFS	0.330
		Benzo (k) fluoreanthene	2.6071	1.65424	NFS	0.330
		Chrysene	5.89541	3.73892	NFS	0.330
SK-SS-14	BP01/BP02 excavation, south sample from the east wall	Lead	18.5383	NFS	NFS	500.0
		Aroclor-1016	<0.0330851	NFS	NFS	0.16 (total)
		Aroclor-1221	<0.0330851	NFS	NFS	
		Aroclor-1232	<0.0330851	NFS	NFS	
		Aroclor-1242	<0.0330851	NFS	NFS	
		Aroclor-1248	<0.0330851	NFS	NFS	
		Aroclor-1254	<0.0330851	NFS	NFS	
		Aroclor-1260	<0.0330851	NFS	NFS	
		Benzo (a) anthracene	2.1288	0.0360084	NFS	0.330
		Benzo (a) pyrene	2.5723	0.811	NFS	0.100
		Benzo (b) fluoreanthene	2.87388	0.0474435	NFS	0.330
		Benzo (k) fluoreanthene	1.19745	0.811	NFS	0.330
		Chrysene	2.11993	0.0360895	NFS	0.330
SK-SS-15	BP01/BP02 excavation, center sample from the east wall	Lead	16.9344	NFS	NFS	500.0
		Aroclor-1016	<0.0330912	NFS	NFS	0.16 (total)
		Aroclor-1221	<0.0330912	NFS	NFS	
		Aroclor-1232	<0.0330912	NFS	NFS	
		Aroclor-1242	<0.0330912	NFS	NFS	
		Aroclor-1248	<0.0330912	NFS	NFS	
		Aroclor-1254	<0.0330912	NFS	NFS	
		Aroclor-1260	<0.0330912	NFS	NFS	
		Benzo (a) anthracene	0.76032	13.6248	1.06672	0.330
		Benzo (a) pyrene	0.687744	NFS	NFS	0.100
		Benzo (b) fluoreanthene	0.92448	16.8688	1.63312	0.330
		Benzo (k) fluoreanthene	0.331776	NFS	NFS	0.330
		Chrysene	0.784512	14.9224	1.26496	0.330

Results presented in mg/kg (ppm)

NFS - No Further Sampling

RA FSP - Remedial Action Field Sampling Plan

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Results reported as wet weight values

Page 3

**Skinner Landfill Remedial Action
Field Sampling Plan
Monthly Report**

Soil Sampling Results

SAMPLE ID	SAMPLE ORIGIN	CONSTITUENT OF CONCERN	EVENT-100 LABORATORY ANALYTICAL RESULT	EVENT-200 LABORATORY ANALYTICAL RESULT	EVENT-300 LABORATORY ANALYTICAL RESULT	RA FSP TRIGGER LEVEL
SK-SS-16	BP01/BP02 excavation, north sample from the east wall	Lead	530.376	349	NFS	500.0
		Aroclor-1016	<0.0330624	NFS	NFS	0.16 (total)
		Aroclor-1221	<0.0330624	NFS	NFS	
		Aroclor-1232	<0.0330624	NFS	NFS	
		Aroclor-1242	<0.0330624	NFS	NFS	
		Aroclor-1248	0.037238	NFS	NFS	
		Aroclor-1254	<0.0330624	NFS	NFS	
		Aroclor-1260	<0.0330624	NFS	NFS	
		Benzo (a) anthracene	0.567399	1.79949	1.00128	0.330
		Benzo (a) pyrene	0.540708	NFS	NFS	0.100
		Benzo (b) fluoroanthene	0.74907	2.35914	1.84164	0.330
		Benzo (k) fluoroanthene	0.861	0.88683	NFS	0.330
		Chrysene	0.651777	2.01474	1.15326	0.330
SK-SS-17	BP01/BP02 excavation, north sample from excavation floor	Lead	19.2269	NFS	NFS	500.0
		Aroclor-1016	<0.033033	NFS	NFS	0.16 (total)
		Aroclor-1221	<0.033033	NFS	NFS	
		Aroclor-1232	<0.033033	NFS	NFS	
		Aroclor-1242	<0.033033	NFS	NFS	
		Aroclor-1248	<0.033033	NFS	NFS	
		Aroclor-1254	<0.033033	NFS	NFS	
		Aroclor-1260	<0.033033	NFS	NFS	
		Benzo (a) anthracene	0.501424	0.281952	NFS	0.330
		Benzo (a) pyrene	0.413336	NFS	NFS	0.100
		Benzo (b) fluoroanthene	0.542927	0.431739	NFS	0.330
		Benzo (k) fluoroanthene	0.235466	NFS	NFS	0.330
		Chrysene	0.532763	0.33642	NFS	0.330
SK-SS-18	BP01/BP02 excavation, center sample from excavation floor	Lead	16.3464	NFS	NFS	500.0
		Aroclor-1016	<0.0330264	NFS	NFS	0.16 (total)
		Aroclor-1221	<0.0330264	NFS	NFS	
		Aroclor-1232	<0.0330264	NFS	NFS	
		Aroclor-1242	<0.0330264	NFS	NFS	
		Aroclor-1248	<0.0330264	NFS	NFS	
		Aroclor-1254	<0.0330264	NFS	NFS	
		Aroclor-1260	<0.0330264	NFS	NFS	
		Benzo (a) anthracene	<0.3300138	NFS	NFS	0.330
		Benzo (a) pyrene	<0.10008	NFS	NFS	0.100
		Benzo (b) fluoroanthene	<0.3300138	NFS	NFS	0.330
		Benzo (k) fluoroanthene	<0.3300138	NFS	NFS	0.330
		Chrysene	<0.3300138	NFS	NFS	0.330
SK-SS-19	BP01/BP02 excavation, south sample from excavation floor	Lead	15.846	NFS	NFS	500.0
		Aroclor-1016	<0.0299406	NFS	NFS	0.16 (total)
		Aroclor-1221	<0.0299406	NFS	NFS	
		Aroclor-1232	<0.0299406	NFS	NFS	
		Aroclor-1242	<0.0299406	NFS	NFS	
		Aroclor-1248	<0.0299406	NFS	NFS	
		Aroclor-1254	<0.0299406	NFS	NFS	
		Aroclor-1260	<0.0299406	NFS	NFS	
		Benzo (a) anthracene	0.064635	NFS	NFS	0.330
		Benzo (a) pyrene	0.0612156	NFS	NFS	0.100
		Benzo (b) fluoroanthene	0.075477	NFS	NFS	0.330
		Benzo (k) fluoroanthene	0.0314418	NFS	NFS	0.330
		Chrysene	0.065469	NFS	NFS	0.330

Results presented in mg/kg (ppm)

NFS - No Further Sampling

RA FSP - Remedial Action Field Sampling Plan

< - result not detected above detection limit with detection limit shown

Results reported as wet weight values

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**SKINNER LANDFILL REMEDIAL ACTION
FIELD SAMPLING PLAN
MONTHLY REPORT**

Validated Laboratory Analytical Results Summary
Surface Water Run-off
Sampling Event No: 100
Laboratory Report No: 20012981

Constituent of Concern	Sample Locations		Trigger Levels
	SK-SWR01-100	SK-SWR02-100	
metals			
arsenic		8.6 j	10.0
barium	46.5	53.5	1,000.0
chromium	0.8	0.5 u	11.0
copper	5.5 j	2.4 j	25.0
lead	1.5 n, uj	1.5 n, uj	4.2
iron	512	101	5,000.0
nickel	0.8	0.6	96.0
selenium		4.5	5.0
silver	1.1 j	1.0 j	10.0
zinc	35.1	21.7	86.0
semi-volatiles			
None Detected			
volatiles			
None Detected			

- Results reported in ug/L (parts per billion).
- Samples collected on May 8, 2001
- Only constituents with concentrations above the laboratory detection limit and that are listed on the Target Compound Lists (Tables 8, 9, 10 and 11 in the Remedial Action Field Sampling Plan, September 7, 2000) are included in the table above.
- None Detected – all semi-volatile and volatile constituents were detected below the laboratory detection limits, refer to the laboratory data report for a listing of the individual constituents.
- j – The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- n – Spiked sample recovery not within control limits.
- uj – The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- **Exceeds Trigger** – indicate analytical data that exceeds the Trigger Levels obtained from the Remedial Action Quality Assurance Project Plan, February, 2001.

**SKINNER LANDFILL REMEDIAL ACTION
FIELD SAMPLING PLAN
MONTHLY REPORT**

Validated Laboratory Analytical Results Summary Surface Water Run-off Sampling Event No: 200 Laboratory Report No: 20013441		
	Sample Location	
Constituent of Concern	SK-SWR02-200	Trigger Levels
metals		
arsenic		10.0
barium	63.0	1,000.0
chromium	1.1	11.0
copper	6.1	25.0
iron	2,140	5,000.0
lead		4.2
mercury	0.1	0.2
nickel	1.6	96.0
selenium		5.0
zinc		86.0
semi-volatiles		
None Detected		
volatiles		
None Detected		
<ul style="list-style-type: none"> • Results reported in ug/L (parts per billion). • Samples collected on June 1, 2001. • Only constituents with concentrations above the laboratory detection limit and that are listed on the Target Compound Lists (Tables 8, 9, 10 and 11 in the <u>Remedial Action Field Sampling Plan</u>, September 7, 2000) are included in the table above. • None Detected – all semi-volatile and volatile constituents were detected below the laboratory detection limits, refer to the laboratory data report for a listing of the individual constituents. • j – The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample. • Shaded cells – indicate analytical data that exceeds the Trigger Levels obtained from the <u>Remedial Action Quality Assurance Project Plan</u>, February, 2001. 		

**SKINNER LANDFILL REMEDIAL ACTION
FIELD SAMPLING PLAN
MONTHLY REPORT**

Validated Laboratory Analytical Results Summary
Construction Surface Water
Sampling Event No: 300
Laboratory Report No: 20013695

Constituent of Concern	Sample Locations					Trigger Levels
	SK-CSW50-300	SK-CSW51-300	SK-CSW52-300	SK-CSW53-300	SK-CSW54-300	
metals						
arsenic						10.0
barium	48.7	48.6	47.9	46.5	48.0	1,000.0
beryllium	0.1 u	0.1 u	0.1 u	0.1 u	0.1 u	5.0
copper	5.0	4.5	3.5	2.7	2.1	25.0
iron	228 j	206 j	122 j	129 j	175 j	5,000.0
lead	1.5 n, uj	1.5 n, uj	1.5 n, uj	1.5 n, uj	1.5 n, uj	4.2
selenium	3.7 uj, n	3.7 uj, n	4.9 j	3.7 uj, n	3.7 j, n	5.0
silver	0.4 u	0.4 u	1.0	1.0	0.4	10.0
zinc	1.3	0.9 u	4.0	0.9 u	11.8	86.0
semi-volatiles						
None Detected						
volatiles						
None Detected						

- Results reported in ug/L (parts per billion).
- Samples collected on June 13, 2001.
- Only constituents with concentrations above the laboratory detection limit and that are listed on the Target Compound Lists (Tables 8, 9, 10 and 11 in the Remedial Action Field Sampling Plan, September 7, 2000) are included in the table above.
- None Detected – all semi-volatile and volatile constituents were detected below the laboratory detection limits, refer to the laboratory data report for a listing of the individual constituents.
- j – The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- n – Spiked sample recovery not within control limits.
- u – The constituent was analyzed for, but was not detected above the level of the associated analytical reporting limit. The associated value is either the sample quantitation limit or the sample detection limit.
- uj – The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- **Exceeds Limit** – indicate analytical data that exceeds the Trigger Levels obtained from the Remedial Action Quality Assurance Project Plan, February, 2001.

**SKINNER LANDFILL REMEDIAL ACTION
FIELD SAMPLING PLAN
MONTHLY REPORT**

Validated Laboratory Analytical Results Summary
Construction Surface Water
Sampling Event No: 200
Laboratory Report No: 20013185

Constituent of Concern	Sample Locations					Trigger Levels
	SK-CSW50-200	SK-CSW51-200	SK-CSW52-200	SK-CSW53-200	SK-CSW54-200	
metals						
arsenic		4.6	4.6	5.0	3.9 u	10.0
barium	45.6	43.5	52.3	157.0	51.9	1,000.0
beryllium	0.1 u	0.1 u	0.1 u	1.0	0.1 u	5.0
chromium	0.5 u	0.5 u	1.9		0.5 u	11.0
copper	13.8	0.6 u	1.3		0.6 u	25.0
iron	480	472	2,440		158	5,000.0
lead	1.5 u	1.5 u	3.5		1.5 u	4.2
nickel	0.6 u	0.6 u	2.7	25.0	0.6 u	96.0
selenium				3.7 r, n		5.0
zinc	18.5	22.7	40.3		4.8	86.0
semi-volatiles						
None Detected						
volatiles						
None Detected						

- Results reported in ug/L (parts per billion).
- Samples collected on May 18, 2001
- Only constituents with concentrations above the laboratory detection limit and that are listed on the Target Compound Lists (Tables 8, 9, 10 and 11 in the Remedial Action Field Sampling Plan, September 7, 2000) are included in the table above.
- None Detected – all semi-volatile and volatile constituents were detected below the laboratory detection limits, refer to the laboratory data report for a listing of the individual constituents.
- j – The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- n – Spiked sample recovery not within control limits.
- r – The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte can not be verified.
- indicate analytical data that exceeds the Trigger Levels obtained from the Remedial Action Quality Assurance Project Plan, February, 2001.

ATTACHMENT 2

FIELD SAMPLING PLAN SUMMARY

**SKINNER LANDFILL REMEDIAL ACTION
FIELD SAMPLING PLAN
MONTHLY REPORT**

REPORTING PERIOD: July 2, 2001 through July 31, 2001

TEST CONDUCTED:

- Surface water and surface water run-off sampling conducted (see table below)
- Soil excavation confirmation sampling/re-sampling

TESTING TO BE CONDUCTED WITHIN THE NEXT SIX WEEKS:

- Surface water sampling (scheduled for 8/20/01)
- Surface water run-off sampling (if greater than 0.10" rainfall event and run-off present)
- Additional soil excavation confirmation sampling (dependant upon results of re-sampling)

MEDIA	MONTH					
	April	May	June	July	August	September
soil			6/26,28/01	7/23/01		
surface water	4/17/01	5/17,18/01	6/13/01	7/26/01		
surface water run-off	NS	5/8/01	6/1/01	7/9/01		
groundwater						
biological		5/31/01				

NS – Not Sampled (no rainfall event of greater than 0.10")

SUMMARY OF LABORATORY ANALYTICAL RESULTS

The final laboratory analytical results of the May 8 and June 1, 2001 surface water run-off sampling events and the May 18 and June 13, 2001 construction surface water sampling events have been validated. The results of these sampling events are presented in the following tables. The final laboratory analytical results of the July 9, 2001 surface water run-off sampling and June 26 and 28, 2001 soil sampling events have been received from the laboratory and are being validated.

The final bio-monitoring results have been obtained and a bio-monitoring report is being prepared.

SUMMARY OF ADDITIONAL FIELD ACTIVITIES

On June 26 through 29, 2001 and July 2 and 3, 2001, four piezometers (PZ-8 through PZ-12) were installed within the limits of the landfill cover.

ATTACHMENT 3
PHOTO DOCUMENTATION



Photo 1. Construction of interceptor trench #3.



Photo 2. Installation of gas vent GV-2 at northeast lobe of landfill.

SKINNER LANDFILL SUPERFUND SITE
REMEDIAL ACTION

July 2001 Report



Photo 3. View of 50-year storm erosion damage between GIS Stations
5+00 and 7+00.



Photo 4. Temporary storage of geosynthetics at northeast corner of site.



Photo 5. First deployment of liner at northeast lobe of landfill.

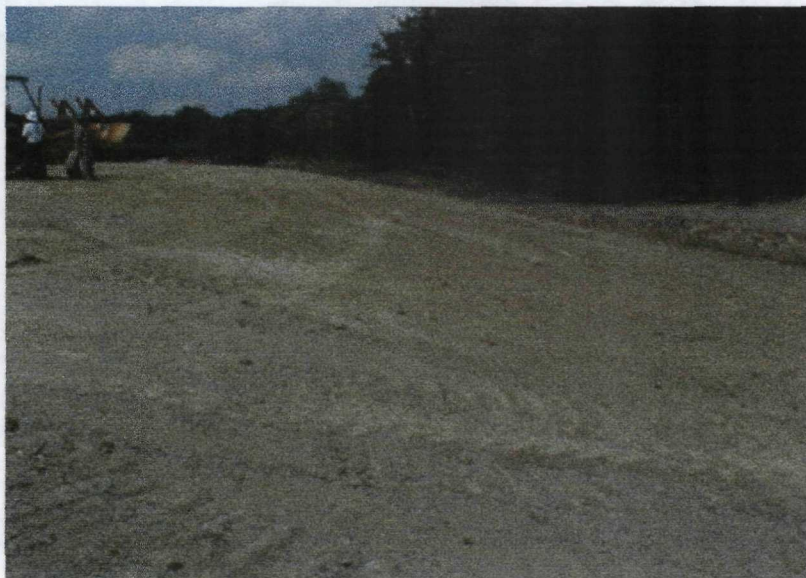


Photo 6. Preparation of subbase surface on east slope of landfill prior to geosynthetic deployment.



Photo 7. Implementation of modified work plan for IT#2 at GIS Station 5+90.
right background.



Photo 8. Connecting geocomposite drainage layer.



Photo 9. Top of FML with completed fusion weld shown at left.
(south area of northeast lobe of landfill)

ATTACHMENT 4
WEEKLY CQA REPORTS

**SKINNER LANDFILL REMEDIAL ACTION
CONSTRUCTION QUALITY ASSURANCE
WEEKLY PROGRESS MEETING REPORT**

MEETING DATE: Tuesday, July 3, 2001

ATTENDEES: R. Roelker, J. Guenther

Current Construction Progress (work completed last week):

Completed waste regrading. Completed construction of Interceptor Trench #1.
Began construction of IT#2. Placed subgrade. Relocated wildlife habitat to final location at North Borrow Area. Completed installation of landfill cap piezometers.

Planned Activities (for this week):

Begin Interceptor Trench #3. Place subgrade and certify some areas. Install cap passive gas vents.

Current Issues (cumulative until resolved):

Possible topsoil shortage. (4,500 CY as measured, 9,000 CY needed).
Ray Skinner indicated possible mustard gas containers buried at northwest corner of landfill.
IT#2 constructed at wrong location (development of corrective action plan in progress).
Rocks near surface of finished subgrade.
Relocation of waste near Duck Pond (North edge of landfill)

Issues Resolved:

Cut/fill quantity analysis (regarding plan approved by EPA).
Shallow rock at North Borrow Area. (regarding plan approved by EPA).

CQA Activities:

Compaction tests being conducted on subgrade placement.
Geosynthetic conformance test samples to be obtained after material rolls arrive at the site.

Design Issues (cumulative):

Fence realignment to allow through access to bridge and gate for west landfill entrance.
Upgrade creek erosion protection from stations 5+00 to 7+00.
No new issues.

Other Items

Geomembrane deployment planned for next week. (Pending passing of conformance testing).

**SKINNER LANDFILL REMEDIAL ACTION
CONSTRUCTION QUALITY ASSURANCE
WEEKLY PROGRESS MEETING REPORT**

MEETING DATE: Friday, July 13, 2001

ATTENDEES: R. Roelker, J. Guenther, R. Warwick, A. Benson

Current Construction Progress (work completed this week):

Completed Interceptor Trench #3. Placed subgrade. Installed cap passive gas vents. Delivery of geosynthetics, dewatering duck pond.

Planned Activities (for next week):

Certify sections of subgrade with liner subcontractor. Deploy liner. Excavate additional impacted soils at Areas GW-31 and BP-1/BP-2.

Current Issues (cumulative until resolved):

Possible topsoil shortage. (4,500 CY as measured, 9,000 CY needed).
IT#2 constructed at correct location, but wrong offset (Modified Work Plan submitted to EPA).
Fence realignment to allow through access to bridge and gate for west landfill entrance.
Upgrade creek erosion protection from stations 5+00 to 7+00. (Submittal to EPA in progress)
Connection to BCDES Manhole #9.
GCL CQA testing required by CQAP needs to be modified (Request sent to EPA).
Revised drainage plan for cap in progress.

Issues Resolved:

Ray Skinner indicated possible mustard gas containers buried at northwest corner of landfill, but none encountered during cap grading.
Relocation of waste near Duck Pond (North edge of landfill). Waste to be removed to property line.
Rocks near surface of finished subgrade. Rock pickers employed as well as placement of thin soil layer.

CQA Activities:

Compaction tests being conducted on subgrade placement.
Geosynthetic conformance test samples obtained and testing in progress.

Other Items

Meeting with West Chester Fire Department planned for July 18, 2001.
Soils from Areas GW-31 and BP-1/BP-2 under PCB trigger levels, but above PAH trigger levels.

**SKINNER LANDFILL REMEDIAL ACTION
CONSTRUCTION QUALITY ASSURANCE
WEEKLY PROGRESS MEETING REPORT**

MEETING DATE: Tuesday, July 24, 2001

ATTENDEES: R. Roelker, J. Guenther

Current Construction Progress (work completed last week):

Finishing subbase placement. Minimal work completed due to 50-year storm event occurring on July 17, 2001. Site repairs made due to storm impacts.

Planned Activities (for this week):

Complete IT#2 modified working platform. Repair diversion berm. Repair subbase. Continue dewatering duck pond. Certify sections of subgrade with liner subcontractor. Begin deployment of liner. Excavate additional impacted soils at Areas GW-31 and BP-1/BP-2.

Current Issues (cumulative until resolved):

Possible topsoil shortage (Evaluation in progress).
Fence realignment to allow through access to bridge and gate for west landfill entrance.
Upgrade creek erosion protection from stations 5+00 to 7+00 (Submittal sent to EPA).
Remove drums atop landfill (Removal Plan sent to EPA)
Connection Letter to BCDES Manhole #9. (in progress)
Revised drainage plan for cap (in progress).
Request electrical supply detail change from underground to overhead.
Send BCDES Discharge Sampling Plan (Plan in progress).

Issues Resolved:

Geosynthetic construction detail clarifications sent to EPA.
IT#2 constructed at correct location, but wrong offset (Modified Work Plan approved by EPA).
GCL CQA testing required by CQAP needs to be modified (Verbal approval by EPA).

CQA Activities:

Compaction tests completed on subbase placement. All passing.
Survey of top of subbase elevations on 100 ft grid in progress.
80% of geosynthetic conformance testing completed. All passing.

Other Items

Meeting with West Chester Fire Department conducted on July 18, 2001.

**SKINNER LANDFILL REMEDIAL ACTION
CONSTRUCTION QUALITY ASSURANCE
WEEKLY PROGRESS MEETING REPORT**

MEETING DATE: Tuesday, July 31, 2001

ATTENDEES: R. Roelker, J. Guenther, J. Kruger

Current Construction Progress (work completed last week):

Completed IT#2 modified working platform. Repaired diversion berm. Repaired subbase. Continued dewatering duck pond. Began deployment of liner at northeast lobe. Excavated and sampled additional impacted soils at Areas GW-31 and BP-1/BP-2.

Planned Activities (for this week):

Deploy liner over the east slope. Complete IT#2. Continue draining Duck Pond. Repair piezometer P-12.

Current Issues (cumulative until resolved):

Possible topsoil shortage (Evaluation in progress).
Fence realignment to allow through access to bridge and gate for west landfill entrance.
Remove drums/tanks from landfill surface (Clarification to be sent to EPA)
Connection Letter to BCDES Manhole #9. (in progress)
Revised drainage plan for cap (in progress).
Request electrical supply detail change from underground to overhead.
Send BCDES Pre-discharge Sampling Plan (Plan in progress).

Issues Resolved:

Upgrade creek erosion protection from stations 5+00 to 7+00 (approved by EPA).

CQA Activities:

Survey of top of subbase elevations on 100 ft grid in progress.
95% of geosynthetic conformance testing completed. All passing.
Certify sections of subgrade with liner subcontractor prior to deployment.
Documenting panel placement, seam tests, non-destruct and destruct tests and repair log.

Other Items

ATTACHMENT 5

SELECTED CONSTRUCTION QUALITY ASSURANCE TESTING RESULTS

Geosynthetics Conformance Testing

Material	Lot Number/ Roll Number	Number of Rolls	Area of Roll (sq ft)	Total Area Sampled (sq ft)	Total Area Required (sq ft)	# Samples Collected (per 2500 sq ft)	Samples Required (per 2500 sq ft)	Actual Samples Taken from Shipments Quantities
Bentomat (GCL)	200127FA3	32	2175	69600	457380	1	1 per 100,000 ft ²	1 per 69,600 ft ²
	200128FA3	187	2175	406725		5	1 per 100,000 ft ²	1 per 81,345 ft ²
Geocomposite	612---	206	3500	721000	914760	10	1 per 100,000 ft ²	1 per 72,016 ft ²
FML	126-----	54	9430	509220	457380	6	1 per 100,000 ft ²	1 per 84,870 ft ²

Note: 3 rolls of Geocomposite at 3,220 Sq.Ft

Updated: July 30, 2001

E

TRIAL WELDS

Skinner Landfill
Final Cover
Earth Tech Project # 38335.07

Date	Time	Amb Temp	Sample ID	Seamer ID	Machine ID	Barrel Temp	Preheat Temp	Wedge Temp	Wedge Speed	Peel			Shear	Observer	Comments			
7/24/01	10:45	84	S-01	AA	C-5	---	---	750	6.5	118.0	119.0	129.0	133.0	130.0	126.0	129.0	JK	-----
7/24/01	13:30	92	S-02	AA	C-5	---	---	750	6.5	112.0	113.0	104.0	105.0	101.0	107.0	134.0	JK	-----
7/25/01	8:30	70	S-03	AA	C-5	---	---	750	6.5	109.0	117.0	107.0	110.0	127.0	135.0	134.0	JK	-----
7/25/01	13:15	88	S-04	AA	C-5	---	---	750	6.5	117.0	117.0	110.0	111.0	118.0	127.0	134.0	JK	-----
7/26/01	8:05	72	S-05	MA	MX-6	250	250	---	---	107.0	---	117.0	---	118.0	---	156.0	JK	-----
7/27/01	8:00	65	S-06	MA	MX-6	250	250	---	---	125.0	---	127.0	---	130.0	---	147.0	JK	-----
7/28/01	7:30	72	S-07	AA	C-5	---	---	750	6.5	127.0	133.0	122.0	129.0	125.0	127.0	152.0	JK	-----
7/30/01	15:30	83	S-08	AA	C-5	---	---	750	6.5	105.0	125.0	115.0	117.0	111.0	118.0	115.0	JK	-----
7/31/01	9:20	75	S-09	AA	C-5	---	---	750	6.5	121.0	132.0	121.0	131.0	111.0	126.0	138.0	JK	-----
7/31/01	13:25	86	S-10	AA	C-5	---	---	750	6.5	115.0	118.0	108.0	112.0	116.0	119.0	114.0	JK	-----
8/1/01	13:20	85	S-11	AA	C-5	---	---	750	6.5	119.0	129.0	117.0	118.0	110.0	118.0	134.0	JK	-----
8/1/01	18:00	89	S-12	AA	C-5	---	---	750	6.5	107.0	114.0	110.0	113.0	100.0	114.0	121.0	JK	-----
8/2/01	7:30	73	S-13	MA	MX-6	250	250	---	---	106.0	0.0	116.0	0.0	129.0	0.0	125.0	JK	-----
8/2/01	13:33	87	S-14	MA	MX-6	250	250	---	---	113.0	0.0	120.0	0.0	131.0	0.0	146.0	JK	-----

E

Destructive Testing Summary

Skinner Landfill

Final Cover

Earth Tech Project # 38335.07

Sample No.	Date	Seam ID	Location	Tech Machine ID	Lab Pest Avg.	Lab Shear Avg.	Field Pass/Fail	Lab Pass/Fail	Observer	Comments
DS-01	7/24/01	P3/P5	0+50	C-5 / AA	130.6	146.9	Pass	Pass	JK	----
DS-02	7/25/01	P8/P10	1+75	C-5 / AA	126.8	143.9	Pass	Pass	JK	----
DS-03	7/25/01	P11/P13	2+00	C-5 / AA	123.5	145.8	Pass	Pass	JK	----
DS-04	7/25/01	P14/P16	1+00	C-5 / AA	136.5	149.3	Pass	Pass	JK	----
DS-05	8/1/01	P18/P19	1+00	C-5 / AA			Pass	Pass	JK	----
DS-06	8/1/01	P21/P22	0+25	C-5 / AA			Pass	Pass	JK	----
DS-07	8/1/01	P23/P25	0+75	C-5 / AA			Pass	Pass	JK	----
DS-08	8/1/01	P26/P27	1+25	C-5 / AA			Pass	Pass	JK	----
DS-09	8/1/01	P22/P30	1+75	C-5 / AA			Pass	Pass	JK	----
DS-10	8/3/01	P32/P33	0+30	C-5 / AA			Pass	Pass	JK	----
DS-11	8/3/01	P34/P36	1+00	C-5 / AA			Pass	Pass	JK	----
DS-12	8/3/01	P37/P38	0+25	C-5 / AA			Pass	Pass	JK	----
DS-13	8/3/01	P40/P41	0+50	C-5 / AA			Pass	Pass	JK	----

E

Panel Placement

Skinner Landfill
Final Cover
Earth Tech Project # 38335.07

Date	Time	Layer	Number	Location	Batch No	Station Begin	Station End	Observer	Comments
7/24/01	10:07	P	01	CAP	12666001	0+00	1+44	JK	-----
7/24/01	11:50	P	02	CAP	12666001	0+00	1+79	JK	-----
7/24/01	12:05	P	03	CAP	12666001	0+00	0+83	JK	-----
7/24/01	12:13	P	04	CAP	12666301	0+83	1+87	JK	-----
7/24/01	15:15	P	05	CAP	12666301	0+00	1+92	JK	-----
7/24/01	15:30	P	06	CAP	12666301	0+00	1+04	JK	-----
7/24/01	15:37	P	07	CAP	12633001	1+04	2+00	JK	-----
7/25/01	8:20	P	08	CAP	12633001	0+00	2+00	JK	-----
7/25/01	10:18	P	09	CAP	12633001	0+00	0+94	JK	-----
7/25/01	10:28	P	10	CAP	12666101	0+94	2+07	JK	-----
7/25/01	10:36	P	11	CAP	12666101	0+00	2+04	JK	-----
7/25/01	14:37	P	12	CAP	12666101	0+00	0+81	JK	-----
7/25/01	14:57	P	13	CAP	12632901	0+81	2+10	JK	-----
7/25/01	15:10	P	14	CAP	12632901	0+00	2+11	JK	-----
7/25/01	15:35	P	15	CAP	12632901	0+00	0+59	JK	-----
7/25/01	15:47	P	16	CAP	12666201	0+59	2+14	JK	-----
7/28/01	8:33	P	17	CAP	12666201	0+00	2+14	JK	-----
7/30/01	15:44	P	18	CAP	12665901	0+00	2+49	JK	-----
7/30/01	16:28	P	19	CAP	12665901	0+94	2+50	JK	-----
7/30/01	16:40	P	20	CAP	12632801	0+00	0+94	JK	-----
7/30/01	17:15	P	21	CAP	12632801	0+00	2+50	JK	-----
7/30/01	18:11	P	22	CAP	12676701	0+00	2+52	JK	-----
7/31/01		P	23	CAP	12676701	0+00	1+46	JK	-----
7/31/01		P	24	CAP	12632501	1+46	2+18	JK	-----
7/31/01		P	25	CAP	12632501	0+00	2+20	JK	-----
7/31/01		P	26	CAP	12677001	0+00	2+50	JK	-----
7/31/01		P	27	CAP	12677001	0+99	2+58	JK	-----
7/31/01		P	28	CAP	12621501	0+00	0+99	JK	-----
7/31/01		P	29	CAP	12621501	0+00	2+50	JK	-----
7/31/01		P	30	CAP	12653901	0+00	2+52	JK	-----
7/31/01		P	31	CAP	12653901	0+96	2+48	JK	-----
7/31/01		P	32	CAP	12632501	0+00	0+98	JK	-----
8/1/01		P	33	CAP	12666001	0+00	2+52	JK	-----
8/1/01		P	34	CAP	12666601	0+94	2+48	JK	-----
8/1/01		P	35	CAP	12621301	0+00	0+94	JK	-----
8/1/01		P	36	CAP	12621301	0+00	2+46	JK	-----

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Panel Placement
Skinner Landfill
Final Cover
Earth Tech Project # 38335.07

Date	Time	Layer	Number	Location	Batch No	Station Begin	Station End	Observer	Comments
8/1/01		P	37	CAP	12677101	0+00	2+30	JK	-----
8/1/01		P	38	CAP	12665801	0+00	1+71	JK	-----
8/1/01		P	39	CAP	12632701	0+00	1+52	JK	-----
8/1/01		P	40	CAP	12632701	0+00	1+22	JK	-----
8/1/01		P	41	CAP	12665701	0+00	1+10	JK	-----

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Panel Seaming

 Skinner Landfill
 Final Cover
 Earth Tech Project # 38335.07

Date	Time	Seam ID	Location	Machine/ Seamer ID	Station Begin	Station End	Observer	Comments
7/24/01	13:40	P1/P2	CAP	C-5 / AA	1+44	0+00	JK	-----
7/24/01	14:04	P3/P4	CAP	C-5 / AA	0+00	0+22	JK	-----
7/24/01	14:13	P2/P4	CAP	C-5 / AA	1+79	0+83	JK	-----
7/24/01	14:23	P2/P3	CAP	C-5 / AA	0+83	0+00	JK	-----
7/24/01	15:27	P4/P5	CAP	C-5 / AA	1+87	0+83	JK	-----
7/24/01	15:36	P3/P5	CAP	C-5 / AA	0+83	0+00	JK	-----
7/24/01	15:48	P6/P7	CAP	C-5 / AA	0+00	0+22	JK	X-SEAM
7/24/01	15:55	P5/P7	CAP	C-5 / AA	1+06	1+92	JK	-----
7/24/01	16:04	P5/P6	CAP	C-5 / AA	0+00	1+06	JK	-----
7/25/01	8:49	P7/P8	CAP	C-5 / AA	2+00	1+04	JK	-----
7/25/01	8:57	P6/P8	CAP	C-5 / AA	1+04	0+00	JK	-----
7/25/01	10:35	P9/P10	CAP	C-5 / AA	0+00	0+23	JK	X-SEAM
7/25/01	10:42	P8/P10	CAP	C-5 / AA	2+04	0+96	JK	-----
7/25/01	10:52	P8/P9	CAP	C-5 / AA	0+96	0+00	JK	-----
7/25/01	11:05	P10/P11	CAP	C-5 / AA	2+07	0+94	JK	-----
7/25/01	11:16	P9/P11	CAP	C-5 / AA	0+94	0+00	JK	-----
7/25/01	14:04	P12/P13	CAP	C-5 / AA	0+00	0+23	JK	X-SEAM
7/25/01	14:12	P11/P13	CAP	C-5 / AA	2+04	0+81	JK	-----
7/25/01	14:24	P11/P12	CAP	C-5 / AA	0+81	0+00	JK	-----
7/25/01	14:44	P13/P14	CAP	C-5 / AA	2+10	0+81	JK	-----
7/25/01	14:55	P12/P14	CAP	C-5 / AA	0+81	0+00	JK	-----
7/25/01	15:50	P15/P16	CAP	C-5 / AA	0+00	0+23	JK	X-SEAM
7/25/01	15:57	P14/P16	CAP	C-5 / AA	2+11	0+59	JK	-----
7/25/01	16:11	P14/P15	CAP	C-5 / AA	0+59	0+00	JK	-----
7/28/01	8:20	P16/P17	CAP	C-5 / AA	2+14	0+59	JK	-----
7/28/01	9:02	P15/P17	CAP	C-5 / AA	0+59	0+00	JK	-----
7/30/01	16:42	P19/P20	CAP	C-5 / AA	0+00	0+23	JK	X-SEAM
7/30/01	16:49	P18/P19	CAP	C-5 / AA	2+49	0+94	JK	-----
7/30/01	17:05	P18/P20	CAP	C-5 / AA	0+94	0+00	JK	-----
7/30/01	17:23	P19/P21	CAP	C-5 / AA	2+50	0+95	JK	-----
7/30/01	17:39	P20/P21	CAP	C-5 / AA	0+94	0+00	JK	-----
7/30/01	18:22	P21/P22	CAP	C-5 / AA	2+50	0+00	JK	-----
7/31/01	9:30	P23/P24	CAP	C-5 / AA	0+00	0+23	JK	X-SEAM
7/31/01	9:38	P17/P24	CAP	C-5 / AA	2+14	1+45	JK	-----

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Panel Seaming
Skinner Landfill
Final Cover
Earth Tech Project # 38335.07

Date	Time	Seam ID	Location	Machine/ Seamer ID	Station Begin	Station End	Observer	Comments
7/31/01	9:44	P17/P23	CAP	C-5 / AA	1+45	0+00	JK	-----
7/31/01	10:02	P24/P25	CAP	C-5 / AA	2+18	1+46	JK	-----
7/31/01	10:08	P23/P25	CAP	C-5 / AA	1+46	0+00	JK	-----
7/31/01	14:15	P18/P26	CAP	C-5 / AA	0+00	2+50	JK	-----
7/31/01	14:49	P27/P28	CAP	C-5 / AA	0+00	0+23	JK	X-SEAM
7/31/01	14:55	P26/P28	CAP	C-5 / AA	0+00	0+99	JK	-----
7/31/01	15:06	P26/P27	CAP	C-5 / AA	0+99	2+58	JK	-----
7/31/01	15:25	P28/P29	CAP	C-5 / AA	0+00	0+97	JK	-----
7/31/01	15:33	P27/P29	CAP	C-5 / AA	0+97	2+50	JK	-----
7/31/01	17:16	P22/P30	CAP	C-5 / AA	2+52	0+00	JK	-----
7/31/01	17:42	P31/P32	CAP	C-5 / AA	0+00	0+23	JK	X-SEAM
7/31/01	17:48	P30/P31	CAP	C-5 / AA	2+48	0+96	JK	-----
7/31/01	18:02	P30/P32	CAP	C-5 / AA	0+96	0+00	JK	-----
8/1/01	13:40	P31/P33	CAP	C-5 / AA	2+50	0+98	JK	-----
8/1/01	13:53	P32/P33	CAP	C-5 / AA	0+98	0+00	JK	-----
8/1/01	14:11	P34/P35	CAP	C-5 / AA	0+00	0+23	JK	X-SEAM
8/1/01	14:24	P33/P34	CAP	C-5 / AA	2+52	0+94	JK	-----
8/1/01	14:39	P33/P35	CAP	C-5 / AA	0+94	0+00	JK	-----
8/1/01	14:55	P34/P36	CAP	C-5 / AA	2+48	0+94	JK	-----
8/1/01	15:11	P35/P36	CAP	C-5 / AA	0+94	0+00	JK	-----
8/1/01	17:39	P36/P37	CAP	C-5 / AA	2+46	0+00	JK	-----
8/1/01	18:08	P37/P38	CAP	C-5 / AA	2+30	0+00	JK	-----
8/1/01	18:30	P38/P39	CAP	C-5 / AA	1+71	0+00	JK	-----
8/1/01	18:50	P39/P40	CAP	C-5 / AA	1+52	0+00	JK	-----
8/1/01	19:10	P40/P41	CAP	C-5 / AA	1+22	0+00	JK	-----

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Repair Log Report

Skinner Landfill

Final Cover

Earth Tech Project # 38335.07

Date	Repair No.	Seam ID	Panel ID	Location	Description Damage	Type Repair	Repair Crew	Date Tested	Test Crew	Observer	Comments
7/27/01	R-01	P2/P3/P4	----	0+83	T-JOINT	PATCH 2X5	MX-6 / MA	7/27/01	JJ	JK	----
7/26/01	R-02	----	P - 04	1+18	BOOT	PATCH 3X4	MX-6 / MA	7/27/01	JJ	JK	----
7/27/01	R-03	P3/P4	----	0+15	HOLE	PATCH-1X1	MX-6 / MA	7/27/01	JJ	JK	----
7/27/01	R-04	P3/P4	----	0+00 to 0+15	RECON	EXTRUDE-15'	MX-6 / MA	7/27/01	JJ	JK	----
7/27/01	R-05	P3/P4	----	0+15 to 0+22	RECON	EXTRUDE-7'	MX-6 / MA	7/27/01	JJ	JK	----
7/27/01	R-06	P3/P4/P5	----	0+83	T-JOINT	PATCH-1X3	MX-6 / MA	7/27/01	JJ	JK	----
7/27/01	R-07	P3/P5	----	0+50	DS-1	PATCH 2X4	MX-6 / MA	7/27/01	JJ	JK	----
7/27/01	R-08	P5/P6/P7	----	1+06	T-JOINT	PATCH 2X3	MX-6 / MA	7/27/01	JJ	JK	----
7/27/01	R-09	P6/P7	----	0+00 to 0+23	RECON	EXTRUDE-23'	MX-6 / MA	7/27/01	JJ	JK	----
7/27/01	R-10	P6/P7/P8	----	1+04	T-JOINT	PATCH 2X3	MX-6 / MA	7/27/01	JJ	JK	----
7/27/01	R-11	P8/P9/P10	----	0+97	T-JOINT	PATCH 2X2	MX-6 / MA	7/27/01	JJ	JK	----
7/27/01	R-12	P9/P10/P11	----	0+94	T-JOINT	PATCH 2X2	MX-6 / MA	7/27/01	JJ	JK	----
7/27/01	R-13	P11/P12/P13	----	0+81	T-JOINT	PATCH 2X4	MX-6 / MA	7/27/01	JJ	JK	----
7/27/01	R-14	----	P - 09	0+59	HOLE	PATCH-1X1	MX-6 / MA	7/27/01	JJ	JK	----
7/27/01	R-15	P8/P10	----	1+75	DS-2	PATCH 2X4	MX-6 / MA	7/27/01	JJ	JK	----
7/27/01	R-16	----	P - 13	0+85	HOLE	PATCH-1X1	MX-6 / MA	7/27/01	JJ	JK	----
7/27/01	R-17	P12/P13/P14	----	0+81	T-JOINT	PATCH 2X3	MX-6 / MA	7/27/01	JJ	JK	----
7/27/01	R-18	----	P - 14	1+42	HOLE	PATCH-1X1	MX-6 / MA	7/27/01	JJ	JK	----
7/27/01	R-19	P11/P13	----	2+00	DS-3	PATCH 2X5	MX-6 / MA	7/27/01	JJ	JK	----
7/27/01	R-20	P14/P16	----	1+00	DS-4	PATCH 2X4	MX-6 / MA	7/27/01	JJ	JK	----
7/27/01	R-21	P14/P16	----	0+64	HOLE	PATCH-1X1	MX-6 / MA	7/27/01	JJ	JK	----
7/27/01	R-22	P14/P16	----	0+59 to 0+64	RECON	EXTRUDE-5'	MX-6 / MA	7/27/01	JJ	JK	----
7/27/01	R-23	P14/P15/P16	----	0+59	T-JOINT	PATCH-1X2	MX-6 / MA	7/27/01	JJ	JK	----
8/2/01	R-24	P15/P16/P17	----	0+59	T-JOINT	PATCH 2X2	MX-6 / MA	8/2/01	AM	JK	----
8/2/01	R-25	P17/P23/P24	----	1+45	T-JOINT	PATCH 2X2	MX-6 / MA	8/2/01	AM	JK	----
8/2/01	R-26	----	P - 23	1+06	BOOT	PATCH 3X3	MX-6 / MA	8/2/01	AM	JK	----
8/2/01	R-27	P23/P25	----	0+75	DS-7	PATCH 2X5	MX-6 / MA	8/2/01	AM	JK	----
8/2/01	R-28	P23/P24/P25	----	1+46	T-JOINT	PATCH 2X2	MX-6 / MA	8/2/01	AM	JK	----
8/2/01	R-29	P27/P28/P29	----	0+97	T-JOINT	PATCH 2X3	MX-6 / MA	8/2/01	AM	JK	----
8/2/01	R-30	----	P - 29	1+26	BOOT	PATCH 4X3	MX-6 / MA	8/2/01	AM	JK	----
8/2/01	R-31	P26/P27	----	1+25	DS-6	PATCH 2X5	MX-6 / MA	8/2/01	AM	JK	----
8/2/01	R-32	P26/P27/P28	----	0+99	T-JOINT	PATCH 2X3	MX-6 / MA	8/2/01	AM	JK	----
8/2/01	R-33	P18/P19	----	1+00	DS-5	PATCH 2X5	MX-6 / MA	8/2/01	AM	JK	----
8/2/01	R-34	P18/P19/P20	----	0+94	T-JOINT	PATCH 2X3	MX-6 / MA	8/2/01	AM	JK	----
8/2/01	R-35	P20/P21	----	0+90 to 0+94	RECON	CAP 2X4	MX-6 / MA	8/2/01	AM	JK	TO X-SEAM

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Repair Log Report

Skinner Landfill

Final Cover

Earth Tech Project # 38335.07

Date	Repair No.	Seam ID	Panel ID	Location	Description Damage	Type Repair	Repair Crew	Date Tested	Test Crew	Observer	Comments
8/2/01	R-36	P21/P22	---	0+25	DS-6	PATCH 2X5	MX-6 / MA	8/2/01	AM	JK	---
8/2/01	R-37	P22/P30	---	1+26	BOOT	PATCH 3X6	MX-6 / MA	8/2/01	AM	JK	---
8/2/01	R-38	P22/P30	---	1+75	DS-9	PATCH 2X4	MX-6 / MA	8/2/01	JJ	JK	---
8/2/01	R-39	P30/P31/P32	---	0+96	T-JOINT	PATCH 2X3	MX-6 / MA	8/2/01	AM	JK	---
8/3/01	R-40	P32/P33	---	0+30	DS-10	PATCH 2X5	MX-6 / MA	8/3/01	AJ	JK	---
8/2/01	R-41	P31/P32/P33	---	0+98	T-JOINT	PATCH 2X3	MX-6 / MA	8/2/01	AM	JK	---
8/2/01	R-42	P33/P34/P35	---	0+94	T-JOINT	PATCH 2X3	MX-6 / MA	8/2/01	JJ	JK	---
8/2/01	R-43	P34/P35/P36	---	0+94	T-JOINT	PATCH 2X3	MX-6 / MA	8/2/01	AM	JK	---
8/3/01	R-44	P34/P36	---	1+00	DS-11	PATCH 2X5	MX-6 / MA	8/3/01	AJ	JK	---
8/2/01	R-45	----	P - 38	0+80	BOOT	PATCH 5X5	MX-6 / MA	8/2/01	JJ	JK	---
8/3/01	R-46	P37/P38	---	0+25	DS-12	PATCH 2X5	MX-6 / MA	8/3/01	AJ	JK	---
8/3/01	R-47	P40/P41	---	0+50	DS-13	PATCH 2X5	MX-6 / MA	8/3/01	AJ	JK	---
8/2/01	R-48	P38/P39	---	1+64	HOLE	PATCH 2X3	MX-6 / MA	8/2/01	JJ	JK	---
8/3/01	R-49	P38/P39	---	1+64 to 1+71	RECON	EXTRUDE-7	MX-6 / MA	8/3/01	AJ	JK	---

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Non-Destructive Testing Summary

Skinner Landfill
Final Cover
Earth Tech Project # 38335.07

Date	Seam ID	Location	Time Begin	Time End	Pressure Begin	Pressure End	Station Begin	Station End	Test Grew	Test P/F	Vacuum Test P/F	Observer	Comments
7/26/01	P1/P2	CAP	8:18	8:23	32	28	0+00	1+44	ER	P	---	JK	---
7/26/01	P2/P3	CAP	8:29	8:34	31	30	0+00	0+83	ER	P	---	JK	---
7/26/01	P2/P4	CAP	8:30	8:35	31	30	0+83	1+79	ER	P	---	JK	---
7/26/01	P4/P5	CAP	8:43	8:48	32	31	0+83	1+87	ER	P	---	JK	---
7/27/01	P5/P7	CAP	7:39	7:44	32	29	1+06	1+92	ER	P	---	JK	---
7/27/01	P6/P7	CAP	7:45	7:50	31	30	0+00	0+22	ER	P	---	JK	X-SEAM
7/27/01	P7/P8	CAP	7:50	7:55	33	32	1+04	2+00	ER	P	---	JK	---
7/27/01	P6/P8	CAP	7:52	7:57	32	29	0+00	1+04	ER	P	---	JK	---
7/27/01	P9/P10	CAP	7:53	7:58	32	32	0+00	0+23	ER	P	---	JK	X-SEAM
7/27/01	P8/P10	CAP	7:56	8:01	32	31	0+96	0+04	ER	P	---	JK	---
7/27/01	P8/P9	CAP	7:58	8:03	31	30	0+00	0+96	ER	P	---	JK	---
7/27/01	P9/P11	CAP	8:03	8:08	31	28	0+00	0+94	ER	P	---	JK	---
7/27/01	P10/P11	CAP	8:04	8:09	34	33	0+94	2+07	ER	P	---	JK	---
7/27/01	P11/P13	CAP	8:06	8:11	34	30	0+81	2+04	ER	P	---	JK	---
7/27/01	P12/P13	CAP	8:10	8:15	33	32	0+00	0+23	ER	P	---	JK	X-SEAM
7/27/01	P11/P12	CAP	8:11	8:16	33	32	0+00	0+81	ER	P	---	JK	---
7/27/01	P13/P14	CAP	8:12	8:17	35	32	0+81	2+10	ER	P	---	JK	---
7/27/01	P12/P14	CAP	8:16	8:21	32	31	0+00	0+81	ER	P	---	JK	---
7/27/01	P15/P16	CAP	8:17	8:22	34	32	0+00	0+23	ER	P	---	JK	X-SEAM
7/27/01	P14/P16	CAP	8:22	8:27	30	30	0+59	2+11	ER	P	---	JK	---
7/27/01	P14/P15	CAP	8:23	8:28	34	31	0+00	0+59	ER	P	---	JK	---
7/27/01	P5/P6	CAP	8:42	8:47	30	29	0+00	1+06	ER	P	---	JK	---
7/27/01	P3/P5	CAP	8:42	8:47	30	29	0+00	0+83	ER	P	---	JK	---
8/2/01	P17/P23	CAP	7:47	7:52	30	30	0+00	1+45	ER	P	---	JK	---
8/2/01	P23/P25	CAP	7:52	7:57	32	32	0+00	1+46	ER	P	---	JK	---
8/2/01	P15/P17	CAP	8:38	8:43	31	30	0+00	0+59	ER	P	---	JK	---
8/2/01	P16/P17	CAP	8:40	8:45	32	31	0+59	2+14	ER	P	---	JK	---
8/2/01	P23/P24	CAP	8:44	8:49	33	31	0+00	0+23	ER	P	---	JK	X-SEAM
8/2/01	P17/P24	CAP	8:47	8:52	33	32	1+45	2+14	ER	P	---	JK	---

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Non-Destructive Testing Summary

Skinner Landfill

Final Cover

Earth Tech Project # 38335.07

Date	Seam ID	Location	Time Begin	Time End	Pressure Begin	Pressure End	Station Begin	Station End	Test Crew	Air Test P/F	Vacuum Test P/F	Observer	Comments
8/2/01	P27/P29	CAP	8:57	9:02	32	30	0+97	2+50	ER	P	---	JK	---
8/2/01	P28/P29	CAP	8:58	9:03	35	34	0+00	0+97	ER	P	---	JK	---
8/2/01	P27/P28	CAP	8:59	9:04	31	30	0+00	0+23	ER	P	---	JK	X-SEAM
8/2/01	P26/P28	CAP	9:06	9:11	32	31	0+00	0+99	ER	P	---	JK	---
8/2/01	P26/P27	CAP	9:07	9:12	33	31	0+99	2+58	ER	P	---	JK	---
8/2/01	P18/P26	CAP	9:08	9:13	31	30	0+00	2+50	ER	P	---	JK	---
8/2/01	P19/P20	CAP	9:17	9:22	32	31	0+00	0+23	ER	P	---	JK	X-SEAM
8/2/01	P18/P20	CAP	9:18	9:23	32	31	0+00	0+94	ER	P	---	JK	---
8/2/01	P18/P19	CAP	9:19	9:24	34	33	0+94	2+49	ER	P	---	JK	---
8/2/01	P21/P22	CAP	9:25	9:30	32	31	0+00	2+50	ER	P	---	JK	---
8/2/01	P19/P21	CAP	9:27	9:32	33	32	0+95	2+50	ER	P	---	JK	---
8/2/01	P20/P21	CAP	9:32	9:37	30	29	0+00	0+90	ER	P	---	JK	---
8/2/01	P22/P30	CAP	9:38	9:43	33	32	0+00	1+26	ER	P	---	JK	---
8/2/01	P33/P34	CAP	9:38	9:43	32	31	0+94	2+52	ER	P	---	JK	---
8/2/01	P22/P30	CAP	9:40	9:45	32	31	1+26	2+52	ER	P	---	JK	---
8/2/01	P30/P32	CAP	9:42	9:47	33	32	0+00	0+96	ER	P	---	JK	---
8/2/01	P31/P32	CAP	9:43	9:48	32	31	0+00	0+23	ER	P	---	JK	X-SEAM
8/2/01	P30/P31	CAP	9:45	9:50	35	32	0+96	2+48	ER	P	---	JK	---
8/2/01	P32/P33	CAP	9:49	9:54	31	30	0+00	0+98	ER	P	---	JK	---
8/2/01	P31/P33	CAP	9:51	9:56	32	31	0+98	2+50	ER	P	---	JK	---
8/2/01	P34/P35	CAP	9:52	9:57	31	30	0+00	0+23	ER	P	---	JK	X-SEAM
8/2/01	P24/P25	CAP	9:53	9:58	33	33	1+46	2+18	ER	P	---	JK	---
8/2/01	P33/P35	CAP	9:59	10:04	30	28	0+00	0+94	ER	P	---	JK	---
8/2/01	P34/P36	CAP	10:00	10:05	30	29	0+94	2+48	ER	P	---	JK	---
8/2/01	P35/P36	CAP	10:07	10:12	32	31	0+00	0+94	ER	P	---	JK	---
8/2/01	P36/P37	CAP	10:08	10:13	33	32	0+00	2+46	ER	P	---	JK	---
8/2/01	P37/P38	CAP	10:09	10:14	32	31	0+00	2+30	ER	P	---	JK	---
8/2/01	P39/P40	CAP	10:17	10:22	32	30	0+00	1+52	ER	P	---	JK	---
8/2/01	P40/P41	CAP	10:18	10:23	32	29	0+00	1+22	ER	P	---	JK	---

E

Non-Destructive Testing Summary

Skinner Landfill
Final Cover
Earth Tech Project # 38335.07

Date	Seam ID	Location	Time Begin	Time End	Pressure Begin	Pressure End	Station Begin	Station End	Test Crew	Grout P/F	Vacuum Test P/F	Observer	Comments
8/2/01	P38/P39	CAP	10:21	10:26	32	31	0+00	1+64	ER	P	----	JK	-----

H.C. NUTTING

MASS PER UNIT AREA OF FABRICS ASTM D3776 (OPTION C)

PROJECT: Skinner LF
W.O. NUMBER: 15396.069
DATE TESTED: 7-16-01
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: Geocomposite
SAMPLE #: cs-cmp-01
ROLL NUMBER: 612056
TEMPERATURE: 73
RELATIVE HUMIDITY: 51

SPECIMEN NO.	UNIT WEIGHT (oz/sq yd)
1	49.6255
2	46.8187
3	47.4613
4	45.6412
5	45.4047
6	49.4507
7	47.8630
8	44.1326
9	45.8412
10	47.0408
AVERAGE	46.9

* The unit weight determination was not performed within the selvage.

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H.C. NUTTING

MASS PER UNIT AREA OF FABRICS ASTM D3776 (OPTION C)

PROJECT: Skinner LF
W.O. NUMBER: 15396.069
DATE TESTED: 7-16-01
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: Geocomposite
SAMPLE #: cs-cmp-02
ROLL NUMBER: 612028
TEMPERATURE: 73
RELATIVE HUMIDITY: 51

SPECIMEN NO.	UNIT WEIGHT (oz/sq yd)
1	43.1874
2	43.6196
3	46.8686
4	45.6048
5	47.3020
6	48.6706
7	50.1944
8	52.7078
9	50.3201
10	48.8585
AVERAGE	47.7

* The unit weight determination was not performed within the selvage.

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H.C. NUTTING

MASS PER UNIT AREA OF FABRICS ASTM D3776 (OPTION C)

PROJECT: Skinner LF
W.O. NUMBER: 15396.069
DATE TESTED: 7-16-01
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: Geocomposite
SAMPLE #: cs-cmp-03
ROLL NUMBER: 612012
TEMPERATURE: 73
RELATIVE HUMIDITY: 51

SPECIMEN NO.	UNIT WEIGHT (oz/sq yd)
1	44.5165
2	50.6280
3	49.7046
4	45.3699
5	47.2486
6	43.9365
7	43.5698
8	48.6646
9	48.7843
10	51.9024
AVERAGE	47.4

* The unit weight determination was not performed within the selvage.

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H.C. NUTTING

MASS PER UNIT AREA OF FABRICS ASTM D3776 (OPTION C)

PROJECT: Skinner LF
W.O. NUMBER: 15396.069
DATE TESTED: 7-16-01
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: Geocomposite
SAMPLE #: cs-cmp-04
ROLL NUMBER: 612269
TEMPERATURE: 73
RELATIVE HUMIDITY: 51

SPECIMEN NO.	UNIT WEIGHT (oz/sq yd)
1	46.2730
2	45.6404
3	48.8995
4	50.1764
5	46.0018
6	44.7884
7	49.5414
8	45.3872
9	47.3388
10	49.4970
AVERAGE	47.4

* The unit weight determination was not performed within the selvage.

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MASS PER UNIT AREA OF FABRICS ASTM D3776 (OPTION C)

PROJECT: Skinner LF
W.O. NUMBER: 15396.069
DATE TESTED: 7-16-01
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: Geocomposite
SAMPLE #: cs-cmp-05
ROLL NUMBER: 612224
TEMPERATURE: 73
RELATIVE HUMIDITY: 51

SPECIMEN NO.	UNIT WEIGHT (oz/sq yd)
1	48.6767
2	49.3888
3	48.6888
4	44.3939
5	46.2940
6	47.5197
7	48.1395
8	46.3106
9	48.0668
10	47.2340
AVERAGE	47.5

* The unit weight determination was not performed within the selvage.

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MASS PER UNIT AREA OF FABRICS ASTM D3776 (OPTION C)

PROJECT: Skinner LF
W.O. NUMBER: 15396.069
DATE TESTED: 7-27-01
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: Geocomposite
SAMPLE #: cs-cmp-06
ROLL NUMBER: 612250
TEMPERATURE: 73
RELATIVE HUMIDITY: 51

SPECIMEN NO.	UNIT WEIGHT (oz/sq yd)
1	44.3456
2	47.3932
3	43.7546
4	46.9291
5	47.5865
6	45.4415
7	47.2258
8	47.7590
9	49.1856
10	52.1813
AVERAGE	47.2

* The unit weight determination was not performed within the selvage.

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MASS PER UNIT AREA OF FABRICS ASTM D3776 (OPTION C)

PROJECT: Skinner LF
W.O. NUMBER: 15396.069
DATE TESTED: 7-27-01
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: Geocomposite
SAMPLE #: cs-cmp-07
ROLL NUMBER: 612169
TEMPERATURE: 73
RELATIVE HUMIDITY: 51

SPECIMEN NO.	UNIT WEIGHT (oz/sq yd)
1	45.3152
2	47.6372
3	47.9631
4	42.3694
5	44.5669
6	53.1694
7	50.7432
8	47.9087
9	44.1671
10	44.5851
AVERAGE	46.8

* The unit weight determination was not performed within the selvage.

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MASS PER UNIT AREA OF FABRICS ASTM D3776 (OPTION C)

PROJECT: Skinner LF
W.O. NUMBER: 15396.069
DATE TESTED: 7-27-01
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: Geocomposite
SAMPLE #: cs-cmp-08
ROLL NUMBER: 612186
TEMPERATURE: 73
RELATIVE HUMIDITY: 51

SPECIMEN NO.	UNIT WEIGHT (oz/sq yd)
1	48.5863
2	44.8469
3	49.9682
4	53.4099
5	47.9456
6	44.8663
7	49.1199
8	52.1677
9	53.7497
10	51.9157
AVERAGE	49.7

* The unit weight determination was not performed within the selvage.

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MASS PER UNIT AREA OF FABRICS ASTM D3776 (OPTION C)

PROJECT: Skinner LF
W.O. NUMBER: 15396.069
DATE TESTED: 7-31-01
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: Geocomposite
SAMPLE # : cs-cmp-09
ROLL NUMBER: 612134
TEMPERATURE: 73
RELATIVE HUMIDITY: 51

SPECIMEN NO.	UNIT WEIGHT (oz/sq yd)
1	46.6502
2	45.2796
3	46.2774
4	53.0635
5	47.4697
6	46.2435
7	47.4956
8	46.3106
9	48.7185
10	44.8233
AVERAGE	47.2

* The unit weight determination was not performed within the selvage.

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MASS PER UNIT AREA OF FABRICS ASTM D3776 (OPTION C)

PROJECT: Skinner LF
W.O. NUMBER: 15396.069
DATE TESTED: 7-31-01
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: Geocomposite
SAMPLE #: cs-cmp-10
ROLL NUMBER: 612171
TEMPERATURE: 73
RELATIVE HUMIDITY: 51

SPECIMEN NO.	UNIT WEIGHT (oz/sq yd)
1	49.6379
2	48.7004
3	47.7177
4	50.3577
5	51.1557
6	49.8036
7	47.9219
8	46.7322
9	49.9494
10	52.1905
AVERAGE	49.4

* The unit weight determination was not performed within the selvage.

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H.C. NUTTING COMPANY

TENSILE PROPERTIES ASTM D638 (NSF 54 MODIFIED)

CLIENT: Earth Tech.
PROJECT: Skinner
WO NUMBER: 15396.069
DATE TESTED: 7/17/2001
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: 60 Mil. Tex. LLDPE
SAMPLE # : CS-FML-01

MACHINE DIRECTION

SPECIMEN NO.	TENSILE STRENGTH		TENSILE ELONGATION	
	@ YIELD (lbs/in)	@ BREAK (lbs/in)	@ YIELD (%)	@ BREAK (%)
MD1	113.3	228.8	32.4	438.4
MD2	111.9	214.1	70.8	391.0
MD3	98.3	220.4	59.2	438.7
MD4	102.3	235.2	61.7	450.0
MD5	99.3	234.0	59.2	475.9
AVERAGE	105.0	226.5	56.7	438.8
STANDARD DEVIATION	7.1	9.0	14.4	30.8

CROSS MACHINE DIRECTION

SPECIMEN NO.	TENSILE STRENGTH		TENSILE ELONGATION	
	@ YIELD (lbs/in)	@ BREAK (lbs/in)	@ YIELD (%)	@ BREAK (%)
XD1	100.3	186.8	24.0	475.8
XD2	116.9	186.7	23.3	466.4
XD3	113.3	196.8	21.1	479.8
XD4	123.8	204.6	21.3	465.6
XD5	124.2	186.6	17.6	454.3
AVERAGE	115.7	192.3	21.5	468.4
STANDARD DEVIATION	9.8	8.1	2.5	10.0

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H.C. NUTTING COMPANY

TENSILE PROPERTIES ASTM D638 (NSF 54 MODIFIED)

CLIENT: Earth Tech.
PROJECT: Skinner
WO NUMBER: 15396.069
DATE TESTED: 7/18/2001
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: 60 Mil. Tex. LLDPE
SAMPLE # : CS-FML-02

MACHINE DIRECTION

SPECIMEN NO.	<u>TENSILE STRENGTH</u>		<u>TENSILE ELONGATION</u>	
	@ YIELD (lbs/in)	@ BREAK (lbs/in)	@ YIELD (%)	@ BREAK (%)
MD1	136.6	279.2	40.5	433.4
MD2	139.3	278.8	28.6	441.0
MD3	135.0	271.2	30.4	426.3
MD4	141.1	288.1	30.3	451.4
MD5	137.8	276.1	31.4	437.0
AVERAGE	137.9	278.7	32.2	437.8
STANDARD DEVIATION	2.4	6.2	4.7	9.3

CROSS MACHINE DIRECTION

SPECIMEN NO.	<u>TENSILE STRENGTH</u>		<u>TENSILE ELONGATION</u>	
	@ YIELD (lbs/in)	@ BREAK (lbs/in)	@ YIELD (%)	@ BREAK (%)
XD1	152.4	208.5	18.4	428.9
XD2	130.3	181.7	21.6	405.8
XD3	141.0	187.3	17.0	428.6
XD4	145.4	191.2	19.9	409.0
XD5	149.8	197.4	19.1	412.9
AVERAGE	143.8	193.2	19.2	417.0
STANDARD DEVIATION	8.7	10.3	1.7	11.0

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H.C. NUTTING COMPANY

TENSILE PROPERTIES ASTM D638 (NSF 54 MODIFIED)

CLIENT: Earth Tech.
PROJECT: Skinner
WO NUMBER: 15396.069
DATE TESTED: 7/18/2001
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: 60 Mil. Tex. LLDPE
SAMPLE # : CS-FML-03

MACHINE DIRECTION

SPECIMEN NO.	<u>TENSILE STRENGTH</u>		<u>TENSILE ELONGATION</u>	
	@ YIELD (lbs/in)	@ BREAK (lbs/in)	@ YIELD (%)	@ BREAK (%)
MD1	126.6	262.0	40.7	441.5
MD2	114.0	230.9	59.8	432.2
MD3	109.9	205.1	31.4	433.4
MD4	115.3	206.5	28.4	478.3
MD5	109.6	228.4	61.7	422.8
AVERAGE	115.1	226.6	44.4	441.6
STANDARD DEVIATION	6.9	23.1	15.6	21.5

CROSS MACHINE DIRECTION

SPECIMEN NO.	<u>TENSILE STRENGTH</u>		<u>TENSILE ELONGATION</u>	
	@ YIELD (lbs/in)	@ BREAK (lbs/in)	@ YIELD (%)	@ BREAK (%)
XD1	126.1	186.5	22.2	430.3
XD2	118.8	211.0	17.2	502.2
XD3	116.5	185.9	17.8	441.4
XD4	118.2	190.5	16.6	486.2
XD5	118.1	188.0	21.8	437.4
AVERAGE	119.5	192.4	19.1	459.5
STANDARD DEVIATION	3.7	10.6	2.7	32.4

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H.C. NUTTING COMPANY

TENSILE PROPERTIES ASTM D638 (NSF 54 MODIFIED)

CLIENT: Earth Tech.
PROJECT: Skinner
WO NUMBER: 15396.069
DATE TESTED: 7/19/2001
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: 60 Mil. Tex. LLDPE
SAMPLE # : CS-FML-04

MACHINE DIRECTION

SPECIMEN NO.	TENSILE STRENGTH		TENSILE ELONGATION	
	@ YIELD (lbs/in)	@ BREAK (lbs/in)	@ YIELD (%)	@ BREAK (%)
MD1	138.4	296.6	29.4	448.2
MD2	122.3	241.3	30.1	451.6
MD3	136.4	273.8	29.6	440.9
MD4	133.8	270.8	29.5	453.8
MD5	130.0	246.0	28.1	447.0
AVERAGE	132.2	265.7	29.4	448.3
STANDARD DEVIATION	6.3	22.5	0.7	5.0

CROSS MACHINE DIRECTION

SPECIMEN NO.	TENSILE STRENGTH		TENSILE ELONGATION	
	@ YIELD (lbs/in)	@ BREAK (lbs/in)	@ YIELD (%)	@ BREAK (%)
XD1	134.3	206.7	20.3	446.9
XD2	147.0	193.6	17.9	422.1
XD3	149.3	208.6	18.1	441.0
XD4	146.5	237.2	18.6	509.4
XD5	129.3	180.0	18.7	433.4
AVERAGE	141.3	205.2	18.7	450.5
STANDARD DEVIATION	8.9	21.3	0.9	34.2

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H.C. NUTTING COMPANY

TENSILE PROPERTIES ASTM D638 (NSF 54 MODIFIED)

CLIENT: Earth Tech.
PROJECT: Skinner
WO NUMBER: 15396.069
DATE TESTED: 7/19/2001
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: 60 Mil. Tex. LLDPE
SAMPLE # : CS-FML-05

MACHINE DIRECTION

SPECIMEN NO.	TENSILE STRENGTH		TENSILE ELONGATION	
	@ YIELD (lbs/in)	@ BREAK (lbs/in)	@ YIELD (%)	@ BREAK (%)
MD1	136.8	216.4	25.5	437.4
MD2	130.4	252.7	29.5	426.7
MD3	131.7	246.9	31.0	416.7
MD4	143.6	263.5	29.7	417.4
MD5	131.9	239.9	27.2	448.6
AVERAGE	134.9	243.9	28.6	429.4
STANDARD DEVIATION	5.5	17.6	2.2	13.7

CROSS MACHINE DIRECTION

SPECIMEN NO.	TENSILE STRENGTH		TENSILE ELONGATION	
	@ YIELD (lbs/in)	@ BREAK (lbs/in)	@ YIELD (%)	@ BREAK (%)
XD1	139.1	190.0	19.1	454.2
XD2	160.1	231.7	19.3	460.9
XD3	144.1	215.7	19.2	450.1
XD4	143.8	233.4	22.1	485.0
XD5	140.5	211.4	18.3	465.8
AVERAGE	145.5	216.5	19.6	463.2
STANDARD DEVIATION	8.4	17.7	1.5	13.6

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TENSILE PROPERTIES ASTM D638 (NSF 54 MODIFIED)

CLIENT: Earth Tech.
PROJECT: Skinner
WO NUMBER: 15396.069
DATE TESTED: 8/3/2001
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: 60 Mil. Tex. LLDPE
SAMPLE # : CS-FML-06

MACHINE DIRECTION

SPECIMEN NO.	TENSILE STRENGTH		TENSILE ELONGATION	
	@ YIELD (lbs/in)	@ BREAK (lbs/in)	@ YIELD (%)	@ BREAK (%)
MD1	127.6	190.1	25.2	394.1
MD2	125.0	245.2	49.9	424.8
MD3	121.1	247.8	27.1	427.8
MD4	124.1	266.7	54.0	436.4
MD5	116.4	234.7	65.1	402.7
AVERAGE	122.8	236.9	44.3	417.2
STANDARD DEVIATION	4.3	28.6	17.4	17.9

CROSS MACHINE DIRECTION

SPECIMEN NO.	TENSILE STRENGTH		TENSILE ELONGATION	
	@ YIELD (lbs/in)	@ BREAK (lbs/in)	@ YIELD (%)	@ BREAK (%)
XD1	115.3	211.9	24.3	501.2
XD2	141.5	221.6	19.2	463.3
XD3	123.6	206.4	23.2	473.6
XD4	132.0	205.4	18.0	474.1
XD5	114.3	184.2	17.9	466.1
AVERAGE	125.3	205.9	20.5	475.7
STANDARD DEVIATION	11.5	13.8	3.0	15.0

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H.C. NUTTING COMPANY

CORE THICKNESS OF TEXTURED GEOMEMBRANE ASTM D5994

CLIENT: Earth Tech.
PROJECT: Skinner LF
W.O. NUMBER: 15396.069
DATE TESTED: 7-17-01
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: 60 Mil. Tex. LLDPE
SAMPLE # : CS-FML-01

SPECIMEN NO.	THICKNESS (mils)
T1	58
T2	61
T3	54
T4	67
T5	63
T6	60
T7	62
T8	59
T9	54
T10	65
AVERAGE	60

- * Testing was performed on an apparatus with a stationary base with a vertical arm which houses a dial gauge.
- * 3-inch x 3-inch specimens were sampled randomly across the width of the sample.
- * A 5-second load time is applied to the sample prior to the dial gauge reading.

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H.C. NUTTING COMPANY

CORE THICKNESS OF TEXTURED GEOMEMBRANE ASTM D5994

CLIENT: Earth Tech.
PROJECT: Skinner LF
W.O. NUMBER: 15396.069
DATE TESTED: 7-18-01
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: 60 Mil. Tex. LLDPE
SAMPLE # : CS-FML-02

SPECIMEN NO.	THICKNESS (mils)
T1	65
T2	68
T3	61
T4	67
T5	65
T6	64
T7	65
T8	67
T9	67
T10	65
AVERAGE	65

- * Testing was performed on an apparatus with a stationary base with a vertical arm which houses a dial gauge.
- * 3-inch x 3-inch specimens were sampled randomly across the width of the sample.
- * A 5-second load time is applied to the sample prior to the dial gauge reading.

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H.C. NUTTING COMPANY

CORE THICKNESS OF TEXTURED GEOMEMBRANE ASTM D5994

CLIENT: Earth Tech.
PROJECT: Skinner LF
W.O. NUMBER: 15396.069
DATE TESTED: 7-18-01
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: 60 Mil. Tex. LLDPE
SAMPLE # : CS-FML-03

SPECIMEN NO.	THICKNESS (mils)
T1	60
T2	64
T3	58
T4	62
T5	62
T6	59
T7	57
T8	58
T9	63
T10	58
AVERAGE	60

- * Testing was performed on an apparatus with a stationary base with a vertical arm which houses a dial gauge.
- * 3-inch x 3-inch specimens were sampled randomly across the width of the sample.
- * A 5-second load time is applied to the sample prior to the dial gauge reading.

The testing herein is based on accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. H. C. Nutting Company neither accepts responsibility for nor makes any claims as to the final use and purpose of the material. This document shall not be reproduced except in full without approval of the H.C. Nutting Company.

H.C. NUTTING COMPANY

CORE THICKNESS OF TEXTURED GEOMEMBRANE ASTM D5994

CLIENT: Earth Tech.
PROJECT: Skinner LF
W.O. NUMBER: 15396.069
DATE TESTED: 7-19-01
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: 60 Mil. Tex. LLDPE
SAMPLE # : CS-FML-04

SPECIMEN NO.	THICKNESS (mils)
T1	66
T2	60
T3	67
T4	63
T5	60
T6	66
T7	67
T8	67
T9	67
T10	67
AVERAGE	65

- * Testing was performed on an apparatus with a stationary base with a vertical arm which houses a dial gauge.
- * 3-inch x 3-inch specimens were sampled randomly across the width of the sample.
- * A 5-second load time is applied to the sample prior to the dial gauge reading.

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H.C. NUTTING COMPANY

CORE THICKNESS OF TEXTURED GEOMEMBRANE ASTM D5994

CLIENT: Earth Tech.
PROJECT: Skinner LF
W.O. NUMBER: 15396.069
DATE TESTED: 7-19-01
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: 60 Mil. Tex. LLDPE
SAMPLE # : CS-FML-05

SPECIMEN NO.	THICKNESS (mils)
T1	66
T2	60
T3	60
T4	62
T5	63
T6	58
T7	67
T8	60
T9	62
T10	67
AVERAGE	63

- * Testing was performed on an apparatus with a stationary base with a vertical arm which houses a dial gauge.
- * 3-inch x 3-inch specimens were sampled randomly across the width of the sample.
- * A 5-second load time is applied to the sample prior to the dial gauge reading.

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H.C. NUTTING COMPANY

CORE THICKNESS OF TEXTURED GEOMEMBRANE ASTM D5994

CLIENT: Earth Tech.
PROJECT: Skinner LF
W.O. NUMBER: 15396.069
DATE TESTED: 8-3-01
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: 60 Mil. Tex. LLDPE
SAMPLE # : CS-FML-06

SPECIMEN NO.	THICKNESS (mils)
T1	58
T2	57
T3	61
T4	59
T5	62
T6	61
T7	61
T8	62
T9	61
T10	59
AVERAGE	60

- * Testing was performed on an apparatus with a stationary base with a vertical arm which houses a dial gauge.
- * 3-inch x 3-inch specimens were sampled randomly across the width of the sample.
- * A 5-second load time is applied to the sample prior to the dial gauge reading.

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H.C. NUTTING
GEOSYNTHETIC CLAY LINER CONFORMANCE TESTING
ASTM D4643/ASTM D3776

PROJECT: Skinner LF
PROJECT NUMBER: 15396.07
DATE TESTED: 7/16/2001
TECH: DBR
CHECKED BY: FCE

MATERIAL: GCL
SAMPLE NUMBER: CS-GCL-01

Specimen Number	1	2	3	Average
1. Tare (g)	24.51	25.98	26.03	25.51
2. Weight of GCL + tare (g)	81.35	83.89	83.35	82.86
3. Weight of Dry GCL+tare (g)	68.93	70.92	70.10	69.98
4. Weight of Dry GCL (g)	44.42	44.94	44.07	44.48
5. Weight of Water (g)	12.42	12.97	13.25	12.88
6. Percent Moisture	27.96	28.86	30.07	28.96
7. Diameter of GCL (in)	4.00	4.00	4.00	4.00
8. Dry Unit Weight (lb/ft ²)	1.12	1.14	1.11	1.12
9. Wet Unit Weight (lb/ft ²)	1.44	1.46	1.45	1.45
10. Unit Weight @ 10% moist. (lb/ft ²)	1.23	1.25	1.22	1.24

H.C. NUTTING
GEOSYNTHETIC CLAY LINER CONFORMANCE TESTING
ASTM D4643/ASTM D3776

PROJECT: Skinner LF
PROJECT NUMBER: 15396.07
DATE TESTED: 7/16/2001
TECH: DBR
CHECKED BY: FCE

MATERIAL: GCL
SAMPLE NUMBER: CS-GCL-02

Specimen Number	1	2	3	Average
1. Tare (g)	24.06	23.97	21.31	23.11
2. Weight of GCL + tare (g)	77.63	76.50	75.86	76.66
3. Weight of Dry GCL+tare (g)	67.13	66.77	64.88	66.26
4. Weight of Dry GCL (g)	43.07	42.80	43.57	43.15
5. Weight of Water (g)	10.50	9.73	10.98	10.40
6. Percent Moisture	24.38	22.73	25.20	24.11
7. Diameter of GCL (in)	4.00	4.00	4.00	4.00
8. Dry Unit Weight (lb/ft ²)	1.09	1.08	1.10	1.09
9. Wet Unit Weight (lb/ft ²)	1.35	1.33	1.38	1.35
10. Unit Weight @ 10% moist. (lb/ft ²)	1.20	1.19	1.21	1.20

H.C. NUTTING
GEOSYNTHETIC CLAY LINER CONFORMANCE TESTING
ASTM D4643/ASTM D3776

PROJECT: Skinner LF
PROJECT NUMBER: 15396.07
DATE TESTED: 7/19/2001
TECH: DBR
CHECKED BY: FCE

MATERIAL: GCL
SAMPLE NUMBER: CS-GCL-03

Specimen Number	1	2	3	Average
1. Tare (g)	25.82	25.80	24.38	25.33
2. Weight of GCL + tare (g)	86.24	84.80	79.74	83.59
3. Weight of Dry GCL+tare (g)	72.40	71.31	67.14	70.28
4. Weight of Dry GCL (g)	46.58	45.51	42.76	44.95
5. Weight of Water (g)	13.84	13.49	12.60	13.31
6. Percent Moisture	29.71	29.64	29.47	29.61
7. Diameter of GCL (in)	4.00	4.00	4.00	4.00
8. Dry Unit Weight (lb/ft ²)	1.18	1.15	1.08	1.14
9. Wet Unit Weight (lb/ft ²)	1.53	1.49	1.40	1.47
10. Unit Weight @ 10% moist. (lb/ft ²)	1.29	1.26	1.19	1.25

H.C. NUTTING
GEOSYNTHETIC CLAY LINER CONFORMANCE TESTING
ASTM D4643/ASTM D3776

PROJECT: Skinner LF
PROJECT NUMBER: 15396.07
DATE TESTED: 7/19/2001
TECH: DBR
CHECKED BY: FCE

MATERIAL: GCL
SAMPLE NUMBER: CS-GCL-04

Specimen Number	1	2	3	Average
1. Tare (g)	23.82	21.15	23.78	22.92
2. Weight of GCL + tare (g)	83.35	82.32	87.07	84.25
3. Weight of Dry GCL+tare (g)	69.79	67.93	72.42	70.05
4. Weight of Dry GCL (g)	45.97	46.78	48.64	47.13
5. Weight of Water (g)	13.56	14.39	14.65	14.20
6. Percent Moisture	29.50	30.76	30.12	30.13
7. Diameter of GCL (in)	4.00	4.00	4.00	4.00
8. Dry Unit Weight (lb/ft ²)	1.16	1.18	1.23	1.19
9. Wet Unit Weight (lb/ft ²)	1.50	1.55	1.60	1.55
10. Unit Weight @ 10% moist. (lb/ft ²)	1.28	1.30	1.35	1.31

H.C. NUTTING
GEOSYNTHETIC CLAY LINER CONFORMANCE TESTING
ASTM D4643/ASTM D3776

PROJECT: Skinner LF
PROJECT NUMBER: 15396.069
DATE TESTED: 7/27/2001
TECH: DBR
CHECKED BY: FCE

MATERIAL: GCL
SAMPLE NUMBER: CS-GCL-06

Specimen Number	1	2	3	Average
1. Tare (g)	24.17	21.44	26.13	23.91
2. Weight of GCL + tare (g)	86.34	78.24	84.21	82.93
3. Weight of Dry GCL+tare (g)	77.02	69.95	75.14	74.04
4. Weight of Dry GCL (g)	52.85	48.51	49.01	50.12
5. Weight of Water (g)	9.32	8.29	9.07	8.89
6. Percent Moisture	17.63	17.09	18.51	17.74
7. Diameter of GCL (in)	4.00	4.00	4.00	4.00
8. Dry Unit Weight (lb/ft ²)	1.34	1.23	1.24	1.27
9. Wet Unit Weight (lb/ft ²)	1.57	1.43	1.47	1.49
10. Unit Weight @ 10% moist. (lb/ft ²)	1.47	1.35	1.36	1.39

H.C. NUTTING
GEOSYNTHETIC CLAY LINER CONFORMANCE TESTING
ASTM D4643/ASTM D3776

PROJECT: Skinner LF
PROJECT NUMBER: 15396.069
DATE TESTED: 7/27/2001
TECH: DBR
CHECKED BY: FCE

MATERIAL: GCL
SAMPLE NUMBER: CS-GCL-06

Specimen Number	1	2	3	Average
1. Tare (g)	24.17	21.44	26.13	23.91
2. Weight of GCL + tare (g)	86.34	78.24	84.21	82.93
3. Weight of Dry GCL+tare (g)	77.02	69.95	75.14	74.04
4. Weight of Dry GCL (g)	52.85	48.51	49.01	50.12
5. Weight of Water (g)	9.32	8.29	9.07	8.89
6. Percent Moisture	17.63	17.09	18.51	17.74
7. Diameter of GCL (in)	4.00	4.00	4.00	4.00
8. Dry Unit Weight (lb/ft ²)	1.34	1.23	1.24	1.27
9. Wet Unit Weight (lb/ft ²)	1.57	1.43	1.47	1.49
10. Unit Weight @ 10% moist. (lb/ft ²)	1.47	1.35	1.36	1.39

H.C. NUTTING COMPANY

Gradient Density Test ASTM D1505

CLIENT: Earth Tech.
PROJECT: Skinner LF
WO NUMBER: 15396.069
DATE TESTED: 7-17-01
TECH: DBR
CHECKED BY: FCE

MATERIAL: 60 Mil. Tex. LLDPE
ROLL NUMBER: 126330
SAMPLE #: CS-FML-01
TEMPERATURE: 23 +/- 0.1 °C
SENSITIVITY: 0.001 g/cc

SPECIMEN NO.	DENSITY (g/cc)
1	0.9350
2	0.9338
3	0.9338
AVERAGE	0.9342

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H.C. NUTTING COMPANY

Gradient Density Test ASTM D1505

CLIENT: Earth Tech.
PROJECT: Skinner LF
WO NUMBER: 15396.069
DATE TESTED: 7/18/2001
TECH: DBR
CHECKED BY: FCE

MATERIAL: 60 Mil. Tex. LLDPE
ROLL NUMBER: 126549
SAMPLE #: CS-FML-02
TEMPERATURE: 23 +/- 0.1 °C
SENSITIVITY: 0.001 g/cc

SPECIMEN NO.	DENSITY (g/cc)
1	0.9363
2	0.9350
3	0.9350
AVERAGE	0.9354

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H.C. NUTTING COMPANY

Gradient Density Test ASTM D1505

CLIENT: Earth Tech.
PROJECT: Skinner LF
WO NUMBER: 15396.069
DATE TESTED: 7/18/2001
TECH: DBR
CHECKED BY: FCE

MATERIAL: 60 Mil. Tex. LLDPE
ROLL NUMBER: 126329
SAMPLE #: CS-FML-03
TEMPERATURE: 23 +/- 0.1 °C
SENSITIVITY: 0.001 g/cc

SPECIMEN NO.	DENSITY (g/cc)
1	0.9375
2	0.9363
3	0.9363
AVERAGE	0.9367

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H.C. NUTTING COMPANY

Gradient Density Test ASTM D1505

CLIENT: Earth Tech.
PROJECT: Skinner LF
WO NUMBER: 15396.069
DATE TESTED: 7/18/2001
TECH: DBR
CHECKED BY: FCE

MATERIAL: 60 Mil. Tex. LLDPE
ROLL NUMBER: 126550
SAMPLE #: CS-FML-04
TEMPERATURE: 23 +/- 0.1 °C
SENSITIVITY: 0.001 g/cc

SPECIMEN NO.	DENSITY (g/cc)
1	0.9375
2	0.9375
3	0.9363
AVERAGE	0.9371

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H.C. NUTTING COMPANY

Gradient Density Test ASTM D1505

CLIENT: Earth Tech.
PROJECT: Skinner LF
WO NUMBER: 15396.069
DATE TESTED: 7/19/2001
TECH: DBR
CHECKED BY: FCE

MATERIAL: 60 Mil. Tex. LLDPE
ROLL NUMBER: 126767
SAMPLE #: CS-FML-05
TEMPERATURE: 23 +/- 0.1 °C
SENSITIVITY: 0.001 g/cc

SPECIMEN NO.	DENSITY (g/cc)
1	0.9350
2	0.9350
3	0.9363
AVERAGE	0.9354

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H.C. NUTTING COMPANY

Gradient Density Test ASTM D1505

CLIENT: Earth Tech.
PROJECT: Skinner LF
WO NUMBER: 15396.069
DATE TESTED: 8/6/2001
TECH: DBR
CHECKED BY: FCE

MATERIAL: 60 Mil. Tex. LLDPE
ROLL NUMBER: 126212
SAMPLE #: CS-FML-06
TEMPERATURE: 23 +/- 0.1 °C
SENSITIVITY: 0.001 g/cc

SPECIMEN NO.	DENSITY (g/cc)
1	0.9375
2	0.9375
3	0.9375
AVERAGE	0.9375

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H.C. NUTTING COMPANY

CARBON BLACK CONTENT AND DISPERSION ASTM D1603 AND D5596

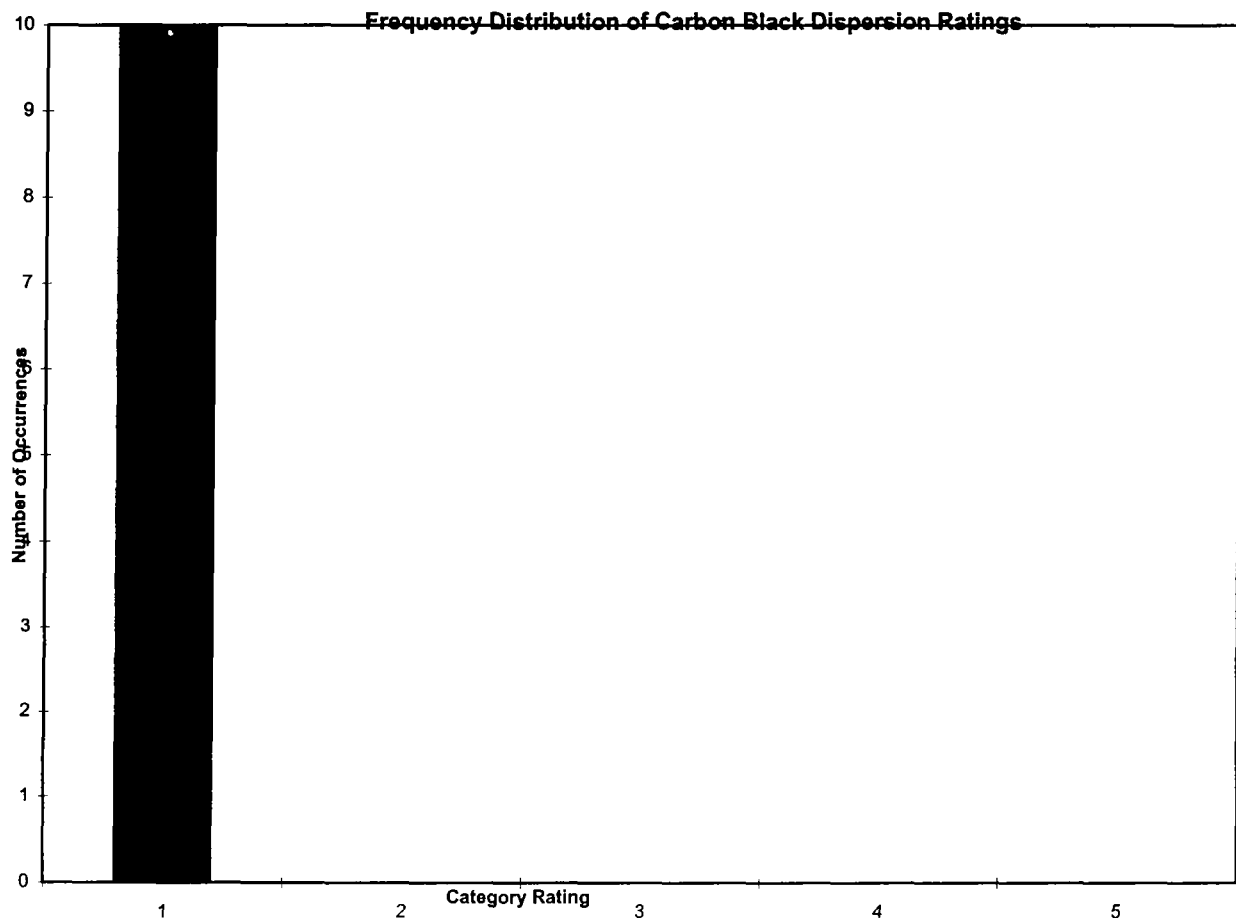
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PROJECT: Skinner LF
WO NUMBER: 15396.069
DATE TESTED: 7/17/2001
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL TYPE: 60 Mil. Tex. LLDPE
SAMPLE NUMBER: CS-FML-01
ROLL NUMBER: 126330

CARBON BLACK CONTENT

TECHNICIAN:
CHECKED BY:

<u>Replicate</u>	<u>% Carbon Black</u>
1	2.77
2	2.63
Average	2.7



COMMENT: According to GRI GM13, a passing sample should meet the following criterion:

1. minimum 8 of 10 views in Categories 1 or 2;
2. all 10 views in Categories 1, 2 or 3.

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H.C. NUTTING COMPANY

CARBON BLACK CONTENT AND DISPERSION ASTM D1603 AND D5596

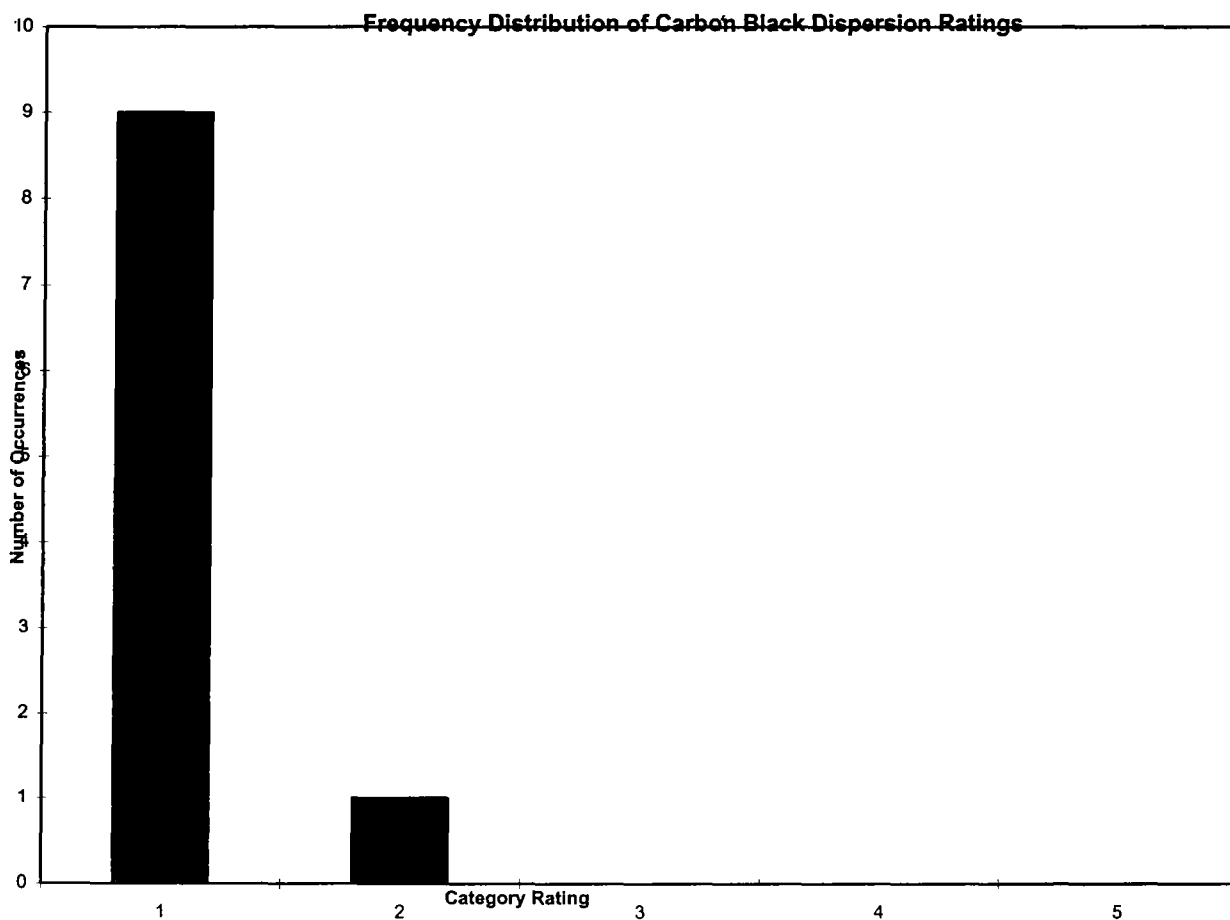
CLIENT: Earth Tech.
PROJECT: Skinner LF
WO NUMBER: 15396.069
DATE TESTED: 7/17/2001
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL TYPE: 60 Mil. Tex. LLDPE
SAMPLE NUMBER: CS-FML-02
ROLL NUMBER: 126549

CARBON BLACK CONTENT

TECHNICIAN:
CHECKED BY:

<u>Replicate</u>	<u>% Carbon Black</u>
1	2.13
2	2.47
Average	2.3



COMMENT: According to GRI GM13, a passing sample should meet the following criterion:

1. minimum 8 of 10 views in Categories 1 or 2;
2. all 10 views in Categories 1, 2 or 3.

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CARBON BLACK CONTENT AND DISPERSION ASTM D1603 AND D5596

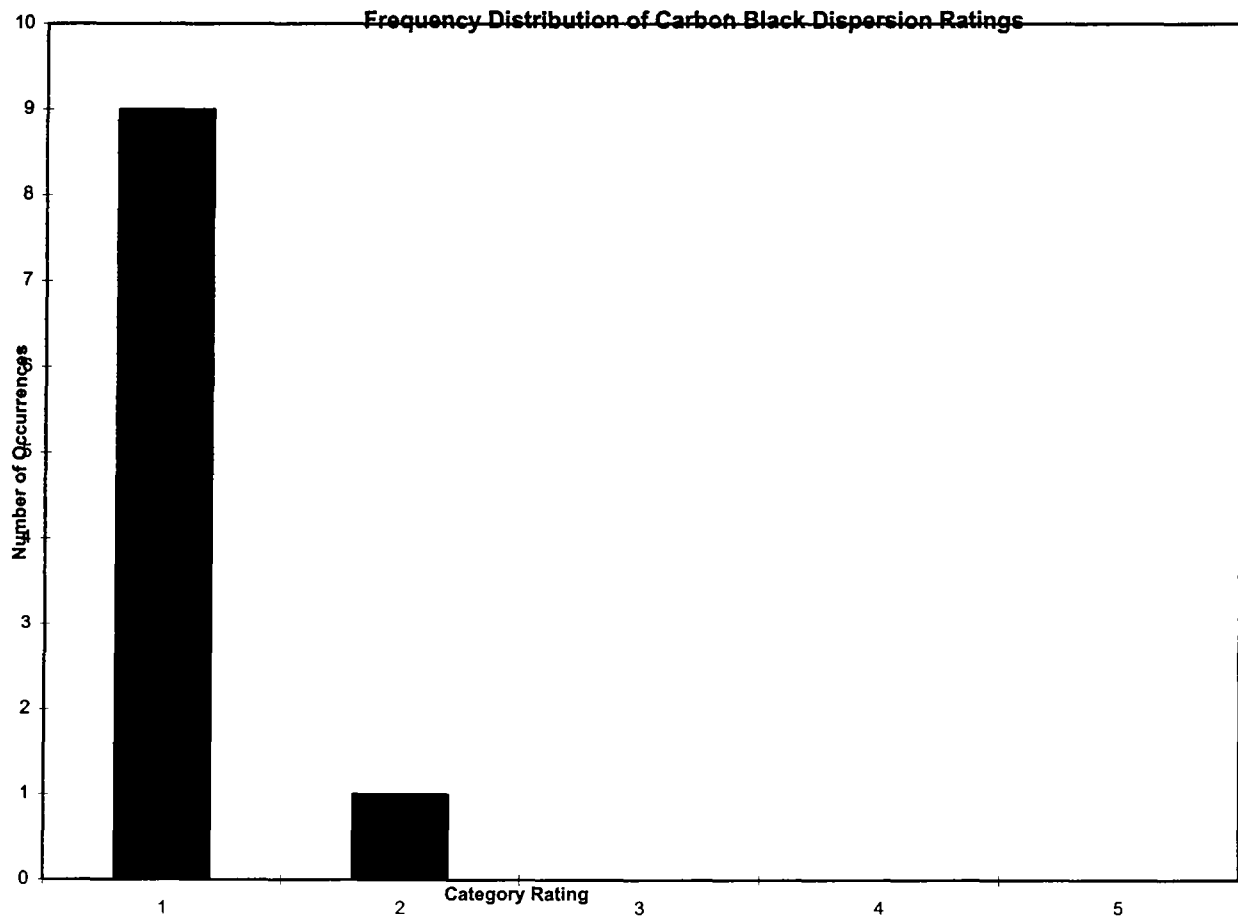
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PROJECT: Skinner LF
WO NUMBER: 15396.069
DATE TESTED: 7/18/2001
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL TYPE: 60 Mil. Tex. LLDPE
SAMPLE NUMBER: CS-FML-03
ROLL NUMBER: 126329

CARBON BLACK CONTENT

TECHNICIAN:
CHECKED BY:

<u>Replicate</u>	<u>% Carbon Black</u>
1	2.6
2	2.65
Average	2.625



COMMENT: According to GRI GM13, a passing sample should meet the following criterion:

1. minimum 8 of 10 views in Categories 1 or 2;
2. all 10 views in Categories 1, 2 or 3.

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CARBON BLACK CONTENT AND DISPERSION ASTM D1603 AND D5596

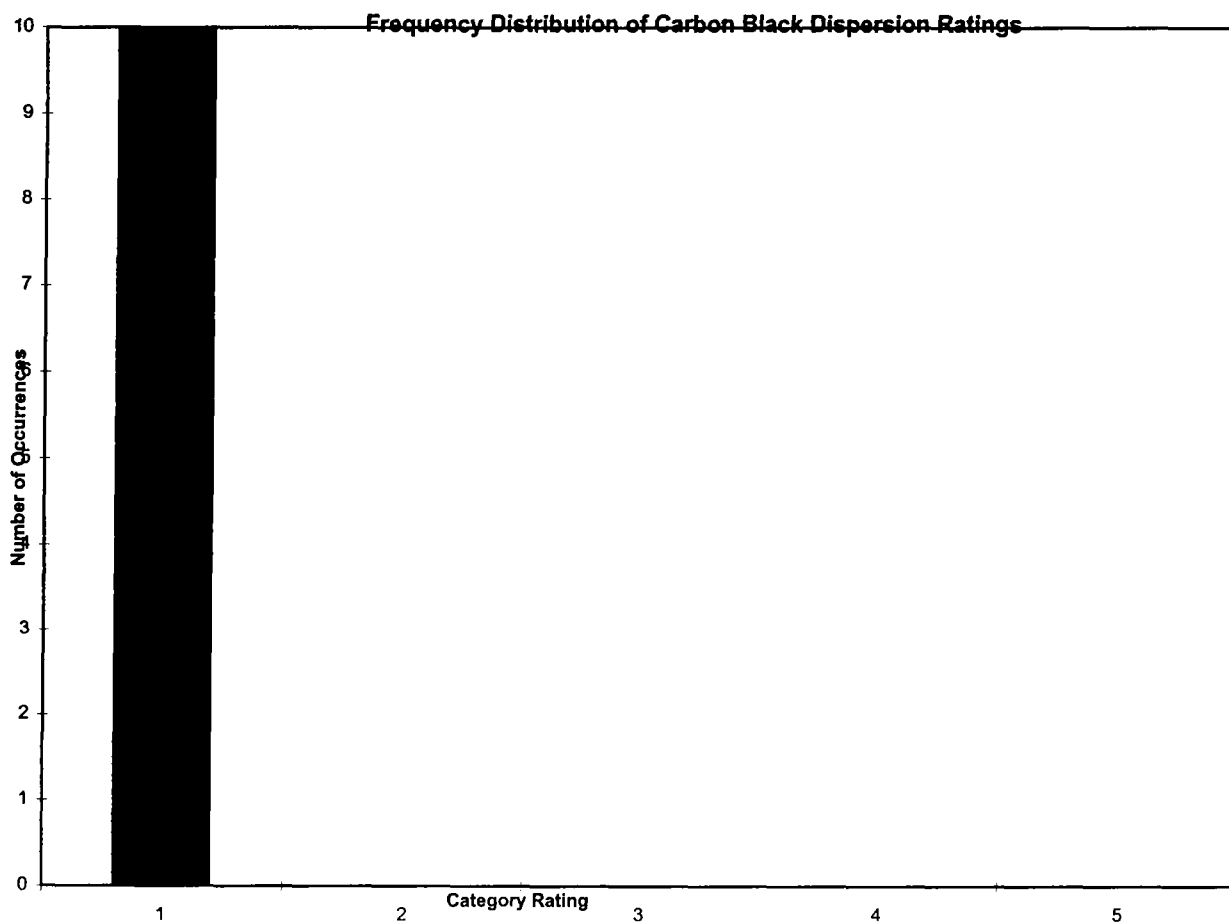
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PROJECT: Skinner LF
WO NUMBER: 15396.069
DATE TESTED: 7/18/2001
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL TYPE: 60 Mil. Tex. LLDPE
SAMPLE NUMBER: CS-FML-04
ROLL NUMBER: 126550

CARBON BLACK CONTENT

TECHNICIAN:
CHECKED BY:

<u>Replicate</u>	<u>% Carbon Black</u>
1	2.34
2	2.39
Average	2.365



COMMENT: According to GRI GM13, a passing sample should meet the following criterion:

1. minimum 8 of 10 views in Categories 1 or 2;
2. all 10 views in Categories 1, 2 or 3.

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CARBON BLACK CONTENT AND DISPERSION ASTM D1603 AND D5596

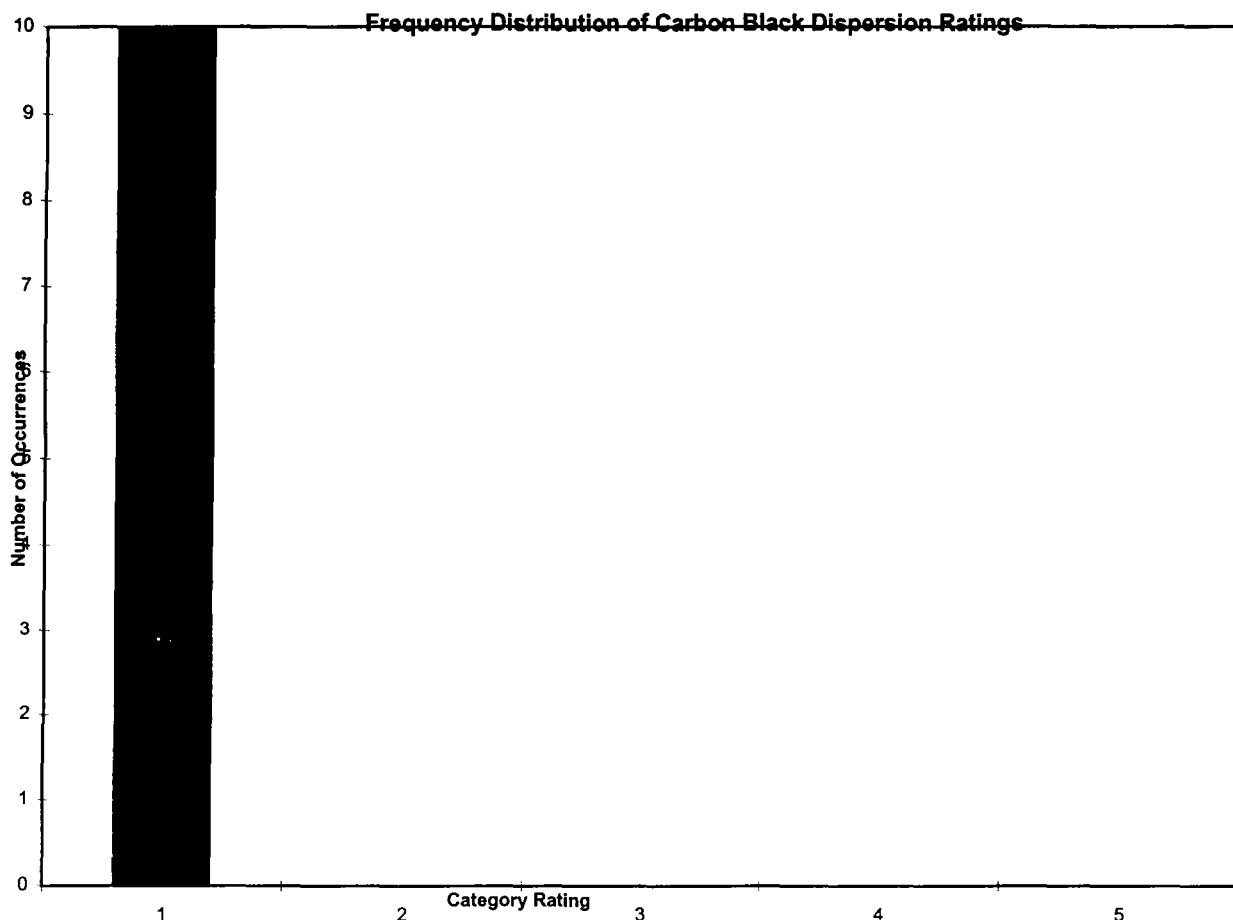
CLIENT: Earth Tech.
PROJECT: Skinner LF
WO NUMBER: 15396.069
DATE TESTED: 7/19/2001
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL TYPE: 60 Mil. Tex. LLDPE
SAMPLE NUMBER: CS-FML-05
ROLL NUMBER: 126767

CARBON BLACK CONTENT

TECHNICIAN:
CHECKED BY:

<u>Replicate</u>	<u>% Carbon Black</u>
1	2.37
2	2.35
Average	2.36



COMMENT: According to GRI GM13, a passing sample should meet the following criterion:

1. minimum 8 of 10 views in Categories 1 or 2;
2. all 10 views in Categories 1, 2 or 3.

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CARBON BLACK CONTENT AND DISPERSION ASTM D1603 AND D5596

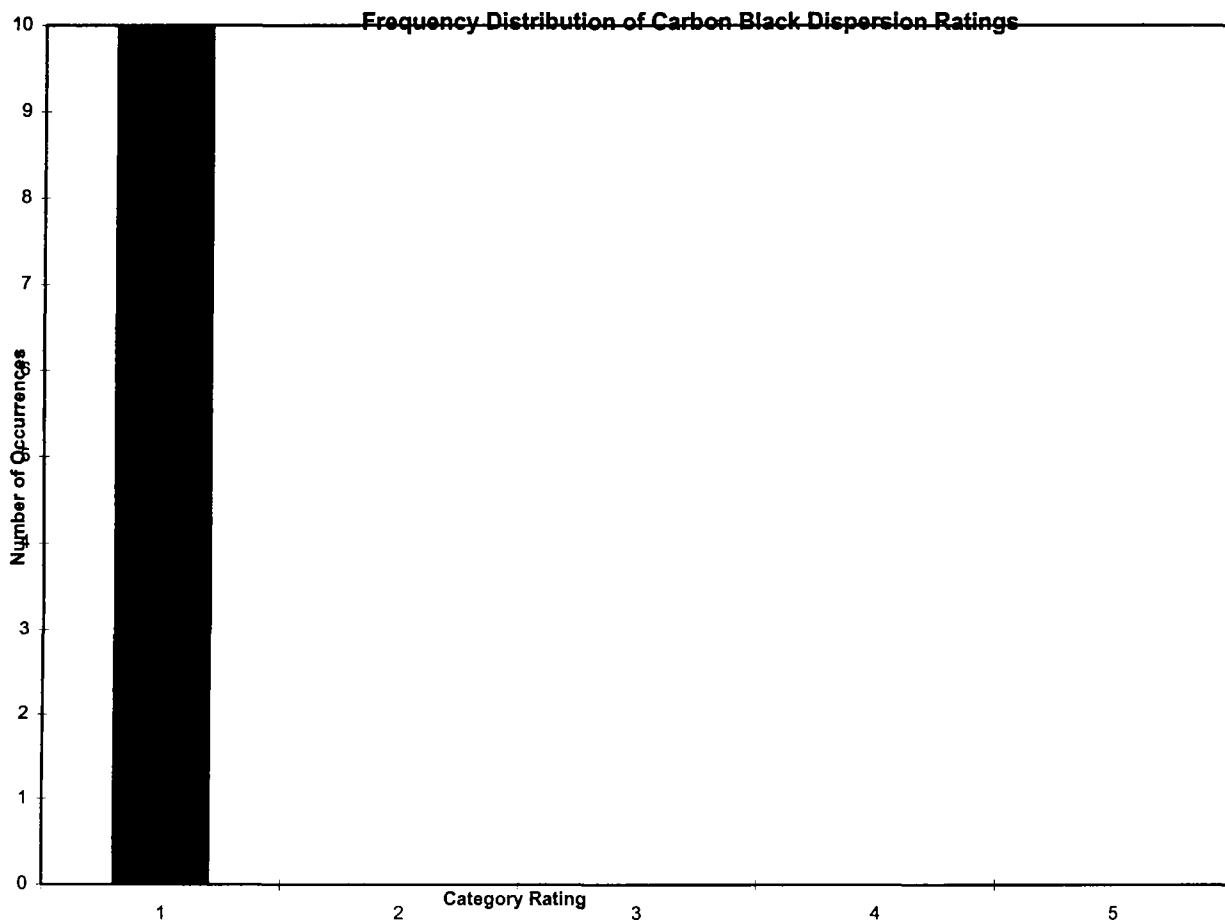
CLIENT: Earth Tech.
PROJECT: Skinner LF
WO NUMBER: 15396.069
DATE TESTED: 8/6/2001
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL TYPE: 60 Mil. Tex. LLDPE
SAMPLE NUMBER: CS-FML-06
ROLL NUMBER: 126212

CARBON BLACK CONTENT

TECHNICIAN:
CHECKED BY:

<u>Replicate</u>	<u>% Carbon Black</u>
1	2.86
2	2.87
Average	2.865



COMMENT: According to GRI GM13, a passing sample should meet the following criterion:

1. minimum 8 of 10 views in Categories 1 or 2;
2. all 10 views in Categories 1, 2 or 3.

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H.C.NUTTING COMPANY

PEEL ADHESION TEST RESULTS (180° Peel) ASTM D413

CLIENT: Earth Tech.
PROJECT: Skinner LF
PROJECT NUMBER: 15396.069
DATE TESTED: 7-16-01
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: Geocomposite
SAMPLE # : cs-cmp-01
ROLL NUMBER: 612056
TEMPERATURE: 73
RELATIVE HUMIDITY: 51
SPECIMEN DEMINSIONS: 1" x 6"

MACHINE DIRECTION

SPECIMEN NO.	TOP LOAD (lbs)	BOTTOM LOAD (lbs)
MD1	2.1	3.4
MD2	4.2	4.2
MD3	3.2	2.3
MD4	2.8	4.6
MD5	6.4	3.9
AVERAGE	3.7	3.7

CROSS MACHINE DIRECTION

SPECIMEN NO.	TOP LOAD (lbs)	BOTTOM LOAD (lbs)
XD1	4.2	4.6
XD2	2.5	2.5
XD3	2.0	2.4
XD4	3.1	5.2
XD5	3.0	3.3
AVERAGE	3.0	3.6

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PEEL ADHESION TEST RESULTS (180° Peel) ASTM D413

CLIENT: Earth Tech.
PROJECT: Skinner LF
PROJECT NUMBER: 15396.069
DATE TESTED: 7-16-01
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: Geocomposite
SAMPLE # : cs-cmp-02
ROLL NUMBER: 612028
TEMPERATURE: 73
RELATIVE HUMIDITY: 51
SPECIMEN DEMINSIONS: 1" x 6"

MACHINE DIRECTION

SPECIMEN NO.	TOP LOAD (lbs)	BOTTOM LOAD (lbs)
MD1	3.0	3.3
MD2	4.2	4.0
MD3	5.5	7.0
MD4	4.8	5.0
MD5	4.1	5.1
AVERAGE	4.3	4.9

CROSS MACHINE DIRECTION

SPECIMEN NO.	TOP LOAD (lbs)	BOTTOM LOAD (lbs)
XD1	4.9	4.5
XD2	4.9	5.8
XD3	5.3	5.5
XD4	4.2	4.4
XD5	3.2	4.5
AVERAGE	4.5	4.9

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PEEL ADHESION TEST RESULTS (180° Peel) ASTM D413

CLIENT: Earth Tech.
PROJECT: Skinner LF
PROJECT NUMBER: 15396.069
DATE TESTED: 7-16-01
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: Geocomposite
SAMPLE # : cs-cmp-03
ROLL NUMBER: 612012
TEMPERATURE: 73
RELATIVE HUMIDITY: 51
SPECIMEN DEMINSIONS: 1" x 6"

MACHINE DIRECTION

SPECIMEN NO.	TOP LOAD (lbs)	BOTTOM LOAD (lbs)
MD1	6.9	6.7
MD2	4.2	2.6
MD3	3.6	3.4
MD4	3.9	4.2
MD5	4.5	2.6
AVERAGE	4.6	3.9

CROSS MACHINE DIRECTION

SPECIMEN NO.	TOP LOAD (lbs)	BOTTOM LOAD (lbs)
XD1	3.8	4.9
XD2	4.0	4.9
XD3	5.0	4.5
XD4	5.1	4.2
XD5	4.2	5.3
AVERAGE	4.4	4.8

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PEEL ADHESION TEST RESULTS (180° Peel) ASTM D413

CLIENT: Earth Tech.
PROJECT: Skinner LF
PROJECT NUMBER: 15396.069
DATE TESTED: 7-27-01
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: Geocomposite
SAMPLE # : cs-cmp-04
ROLL NUMBER: 612269
TEMPERATURE: 73
RELATIVE HUMIDITY: 51
SPECIMEN DEMINSIONS: 1" x 6"

MACHINE DIRECTION

SPECIMEN NO.	TOP LOAD (lbs)	BOTTOM LOAD (lbs)
MD1	2.2	2.0
MD2	2.1	2.7
MD3	6.2	6.5
MD4	6.0	4.9
MD5	3.0	2.0
AVERAGE	3.9	3.6

CROSS MACHINE DIRECTION

SPECIMEN NO.	TOP LOAD (lbs)	BOTTOM LOAD (lbs)
XD1	4.6	6.0
XD2	2.8	2.4
XD3	1.8	1.8
XD4	7.0	5.2
XD5	5.1	3.7
AVERAGE	4.3	3.8

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PEEL ADHESION TEST RESULTS (180° Peel) ASTM D413

CLIENT: Earth Tech.
PROJECT: Skinner LF
PROJECT NUMBER: 15396.069
DATE TESTED: 7-27-01
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: Geocomposite
SAMPLE # : cs-cmp-05
ROLL NUMBER: 612224
TEMPERATURE: 73
RELATIVE HUMIDITY: 51
SPECIMEN DEMINSIONS: 1" x 6"

MACHINE DIRECTION

SPECIMEN NO.	TOP LOAD (lbs)	BOTTOM LOAD (lbs)
MD1	6.1	3.5
MD2	4.1	4.2
MD3	4.7	5.5
MD4	4.1	5.0
MD5	3.9	5.6
AVERAGE	4.6	4.8

CROSS MACHINE DIRECTION

SPECIMEN NO.	TOP LOAD (lbs)	BOTTOM LOAD (lbs)
XD1	3.3	4.2
XD2	2.7	4.1
XD3	4.4	6.9
XD4	5.2	6.4
XD5	3.1	5.2
AVERAGE	3.7	5.4

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PEEL ADHESION TEST RESULTS (180° Peel) ASTM D413

CLIENT: Earth Tech.
PROJECT: Skinner LF
PROJECT NUMBER: 15396.069
DATE TESTED: 7-27-01
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: Geocomposite
SAMPLE # : cs-cmp-06
ROLL NUMBER: 612250
TEMPERATURE: 73
RELATIVE HUMIDITY: 51
SPECIMEN DEMINSIONS: 1" x 6"

MACHINE DIRECTION

SPECIMEN NO.	TOP LOAD (lbs)	BOTTOM LOAD (lbs)
MD1	2.0	4.2
MD2	5.2	5.7
MD3	2.1	2.5
MD4	8.6	4.7
MD5	4.8	6.0
AVERAGE	4.5	4.6

CROSS MACHINE DIRECTION

SPECIMEN NO.	TOP LOAD (lbs)	BOTTOM LOAD (lbs)
XD1	3.3	2.7
XD2	4.0	3.8
XD3	5.7	5.6
XD4	5.1	5.3
XD5	6.3	3.4
AVERAGE	4.9	4.2

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PEEL ADHESION TEST RESULTS (180° Peel) ASTM D413

CLIENT: Earth Tech.
PROJECT: Skinner LF
PROJECT NUMBER: 15396.069
DATE TESTED: 7-27-01
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: Geocomposite
SAMPLE # : cs-cmp-07
ROLL NUMBER: 612169
TEMPERATURE: 73
RELATIVE HUMIDITY: 51
SPECIMEN DEMINSIONS: 1" x 6"

MACHINE DIRECTION

SPECIMEN NO.	TOP LOAD (lbs)	BOTTOM LOAD (lbs)
MD1	3.4	2.4
MD2	5.9	4.8
MD3	6.9	5.2
MD4	1.6	2.1
MD5	1.9	3.2
AVERAGE	3.9	3.5

CROSS MACHINE DIRECTION

SPECIMEN NO.	TOP LOAD (lbs)	BOTTOM LOAD (lbs)
XD1	2.5	2.8
XD2	5.8	4.7
XD3	4.9	2.1
XD4	5.0	3.9
XD5	2.8	5.1
AVERAGE	4.2	3.7

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PEEL ADHESION TEST RESULTS (180° Peel) ASTM D413

CLIENT: Earth Tech.
PROJECT: Skinner LF
PROJECT NUMBER: 15396.069
DATE TESTED: 7-30-01
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: Geocomposite
SAMPLE # : cs-cmp-08
ROLL NUMBER: 612186
TEMPERATURE: 73
RELATIVE HUMIDITY: 51
SPECIMEN DEMINSIONS: 1" x 6"

MACHINE DIRECTION

SPECIMEN NO.	TOP LOAD (lbs)	BOTTOM LOAD (lbs)
MD1	3.8	5.3
MD2	1.9	4.3
MD3	3.7	3.7
MD4	6.4	5.6
MD5	6.2	5.0
AVERAGE	4.4	4.8

CROSS MACHINE DIRECTION

SPECIMEN NO.	TOP LOAD (lbs)	BOTTOM LOAD (lbs)
XD1	6.0	5.4
XD2	3.6	3.4
XD3	4.7	3.7
XD4	4.6	2.1
XD5	7.4	5.8
AVERAGE	5.3	4.1

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PEEL ADHESION TEST RESULTS (180° Peel) ASTM D413

CLIENT: Earth Tech.
PROJECT: Skinner LF
PROJECT NUMBER: 15396.069
DATE TESTED: 7-31-01
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: Geocomposite
SAMPLE # : cs-cmp-09
ROLL NUMBER: 612134
TEMPERATURE: 73
RELATIVE HUMIDITY: 51
SPECIMEN DEMINSIONS: 1" x 6"

MACHINE DIRECTION

SPECIMEN NO.	TOP LOAD (lbs)	BOTTOM LOAD (lbs)
MD1	2.5	3.1
MD2	6.0	5.6
MD3	4.8	7.0
MD4	4.8	3.8
MD5	3.7	3.6
AVERAGE	4.4	4.6

CROSS MACHINE DIRECTION

SPECIMEN NO.	TOP LOAD (lbs)	BOTTOM LOAD (lbs)
XD1	2.1	2.1
XD2	3.7	3.4
XD3	5.2	4.0
XD4	2.8	5.1
XD5	7.1	4.9
AVERAGE	4.2	3.9

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PEEL ADHESION TEST RESULTS (180° Peel) ASTM D413

CLIENT: Earth Tech.
PROJECT: Skinner LF
PROJECT NUMBER: 15396.069
DATE TESTED: 7-31-01
TECHNICIAN: DBR
CHECKED BY: FCE

MATERIAL: Geocomposite
SAMPLE #: cs-cmp-10
ROLL NUMBER: 612171
TEMPERATURE: 73
RELATIVE HUMIDITY: 51
SPECIMEN DEMINSIONS: 1" x 6"

MACHINE DIRECTION

SPECIMEN NO.	TOP LOAD (lbs)	BOTTOM LOAD (lbs)
MD1	4.1	1.8
MD2	5.1	5.0
MD3	3.8	3.4
MD4	6.9	5.2
MD5	6.2	3.9
AVERAGE	5.2	3.9

CROSS MACHINE DIRECTION

SPECIMEN NO.	TOP LOAD (lbs)	BOTTOM LOAD (lbs)
XD1	5.7	5.1
XD2	3.1	2.3
XD3	6.8	6.2
XD4	5.3	5.6
XD5	5.6	4.9
AVERAGE	5.3	4.8

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Alt & Witzig Engineering, Inc.

10178 International Boulevard - Cincinnati, Ohio 45246

(513) 874-9494 - Fax (513) 874-9452

REPORT OF FIELD COMPACTION TESTS

Project: Skinner Landfill

Compaction Specifications: 90

Client: Earth Tech

Compaction Equip. Used: 90 lb/behind sheep

Date: 7/3/01 Day: Tuesday

Description of Fill Material: bc/su/cl/1/6r

Technician: MARK

Source of Material: _____

Weather/Temp.: cloudy 60's-70's

Test No.	Grade/Elev.	Soil ID Number	Maximum Lab Dry Density	Moisture Content	In Place Dry Density	Percent Compaction	Comments
1	Grade	25C	129.1	13.8	124.6	96.5	A
2	"	"	"	14.4	126.4	97.9	A
3							
4							
5							
6							
7							
8							

Test No.	Test Location	
1	N 491750	E 1432250
2	N 491600	E 1432400
3		
4		
5		
6		
7		
8		

⚠ Attach sketch if locations are unclear.

Densities Shown: Lbs. Per cubic foot

Moisture Content: Percent of dry weight

Percent Compaction: Based on maximum dry density obtained on sample indicated by soil ID number.

(*)A = Test Results Comply with Specifications
B = Recomposition Required
C = Test is After Recomposition



Alt & Witzig Engineering, Inc.

10178 International Boulevard - Cincinnati, Ohio 45246

(513) 874-9494 - Fax (513) 874-9452

REPORT OF FIELD COMPACTION TESTS

Project: Skinner Landfill

Client: Earth Tech

Date: 7-5-01 Day: Thursday

Technician: MARK

Weather/Temp.: Sunny 70's-80's

Compaction Specifications: 98%

Compaction Equip. Used: pullbehind sheepsfoot

Description of Fill Material: Gr/sr/cl/w/gr

Source of Material: _____

Test No.	Grade/Elev.	Soil ID Number	Maximum Lab Dry Density	Moisture Content	In Place Dry Density	Percent Compaction	Comments
1	Grade	25C	129.1	11.3	122.3	94.7	A
2	"			9.4	120.6	93.4	A
3							
4							
5							
6							
7							
8							

Test No.	Test Location
1	N 491500 E 1431900, area 2
2	N 491400 E 1432050, area 2
3	
4	
5	
6	
7	
8	

* Attach sketch if locations are unclear.

Densities Shown: Lbs. Per cubic foot

Moisture Content: Percent of dry weight

Percent Compaction: Based on maximum dry density obtained

(*)A = Test Results Comply with Specifications

B = Recompanction Required

C = Test is After Recompanction



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10178 International Boulevard - Cincinnati, Ohio 45246

(513) 874-9494 - Fax (513) 874-9452

REPORT OF FIELD COMPACTION TESTS

ect: Skinner Landfill

nt: Earth Tech

e: 7-6-01 Day: Friday

hnician: Mark

ather/Temp: Sunny 70's-80's

Compaction Specifications: 90%

Compaction Equip. Used: pullbehind sheep foot

Description of Fill Material: Bc/sa/cl/w/o

Source of Material: _____

test o.	Grade/Elev.	Soil ID Number	Maximum Lab Dry Density	Moisture Content	In Place Dry Density	Percent Compaction	Comments
1	Grade	25C	129.1	11.3	123.7	95.8	A
2	"			9.4	120.3	93.1	A
3	"			8.7	124.9	96.7	A
4	"			10.6	127.6	98.8	A
5							
6							
7							
8							

Test No.	Test Location	
1	N 491550	E 1431850 (Section 2)
2	N 4911500	E 1432050
3	N 491850	E 1432150 (Section 3)
4	N 491500	E 1432250
5		
6		
7		
8		

Attach sketch if locations are unclear.

Density: Shown: Lbs. Per cubic foot

Moisture Content: Percent of dry weight

Based on maximum dry density obtained

(*)A = Test Results Comply with Specifications

B = Recompression Required

C = Test is After Recompression



Alt & Witzig Engineering, Inc.

10178 International Boulevard - Cincinnati, Ohio 45246

(513) 874-9494 - Fax (513) 874-9452

REPORT OF FIELD COMPACTION TESTS

Project: Skinner Landfill

Client: Earth Tech

Date: 7-11-01 Day: wednesday

Technician: MARK

Weather/Temp.: clear 70's - 80's

Compaction Specifications: 90%

Compaction Equip. Used: pull behind sheep foot

Description of Fill Material: Br Sn cl w/cr

Source of Material: _____

Test No.	Grade/Elev.	Soil ID Number	Maximum Lab Dry Density	Moisture Content	In Place Dry Density	Percent Compaction	Comments
1	-1	2 SC	129.1	7.1	124.6	96.5	A
2	-1			8.4	120.5	93.3	A
3	-1			11.3	123.2	95.4	A
4	-1			7.7	126.3	97.8	A
5	Grade			6.8	121.6	94.1	A
6	Grade			10.2	122.8	95.1	A
7							
8							

Test No.	Test Location	
1	N 491220	E 1432017
2	N 491285	E 1432085
3	N 491280	E 1432185
4	N 491180	E 1432265
5	N 491520	E 1432005
6	N 491540	E 1432085
7		
8		

Attach sketch if locations are unclear.

Densities Shown: lbs. Per cubic foot

Moisture Content: Percent of dry weight

Percent Compaction: Based on maximum dry density obtained

(*)A = Test Results Comply with Specifications

B = Recompanction Required

C = Test is After Recompanction



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10178 International Boulevard - Cincinnati, Ohio 45246

(513) 874-9494 - Fax (513) 874-9452

REPORT OF FIELD COMPACTION TESTS

Project: SKinner Land Fill

Client: Earth Tech.

Date: 7-13-01 Day: Friday

Technician: Mark

Weather/Temp.: Clear 70's-80's

Compaction Specifications: 90

Compaction Equip. Used: Roll behind sheepsfoot

Description of Fill Material: Br/s/c 1 1/2

Source of Material: _____

Test No.	Grade/Elev.	Soil ID Number	Maximum Lab Dry Density	Moisture Content	In Place Dry Density	Percent Compaction	Comments
1	Grade	2SC	129.1	11.3	118.2	91.5	A
2	"			10.4	120.6	93.4	A
3				9.8	124.3	96.2	A
4				9.7	126.5	97.9	A
5							
6							
7							
8							

Test No.	Test Location
1	N 491650 E 1431950
2	N 491700 E 1432050
3	East slope slope
4	"
5	
6	
7	
8	

✎ Attach sketch if locations are unclear.

Densities Shown: lbs. Per cubic foot

Moisture Content: Percent of dry weight

Percent Compaction: Based on maximum dry density obtained

(*)A = Test Results Comply with Specifications

B = Recompanction Required

C = Test is After Recompanction



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10178 International Boulevard - Cincinnati, Ohio 45246

(513) 874-9494 - Fax (513) 874-9452

REPORT OF FIELD COMPACTION TESTS

Project: Skinner land fill

Client: Earth Tech.

Date: 7-16-01 Day: Monday

Technician: mark

Weather/Temp.: Sunny 70's - 80's

Compaction Specifications: 90

Compaction Equip. Used: fall backhoe sheepfoot

Description of Fill Material: Bc/sa/cl/w/gr

Source of Material: _____

Test No.	Grade/Elev.	Soil ID Number	Maximum Lab Dry Density	Moisture Content	In Place Dry Density	Percent Compaction	Comments
1	-2	25C	129.1	10.1	128.7	99.6	A
2	-2			7.7	119.6	92.6	A
3	-2			8.2	122.8	95.1	A
4	-2			6.7	125.3	97.0	A
5							
6							
7							
8							

Test No.	Test Location
1	South slope
2	"
3	"
4	"
5	
6	
7	
8	

⚠ Attach sketch if locations are unclear.

Densities Shown: lbs. Per cubic foot

Moisture Content: Percent of dry weight

Percent Compaction: Based on maximum dry density obtained

(*)A = Test Results Comply with Specifications

B = Recompression Required

C = Test is After Recompression